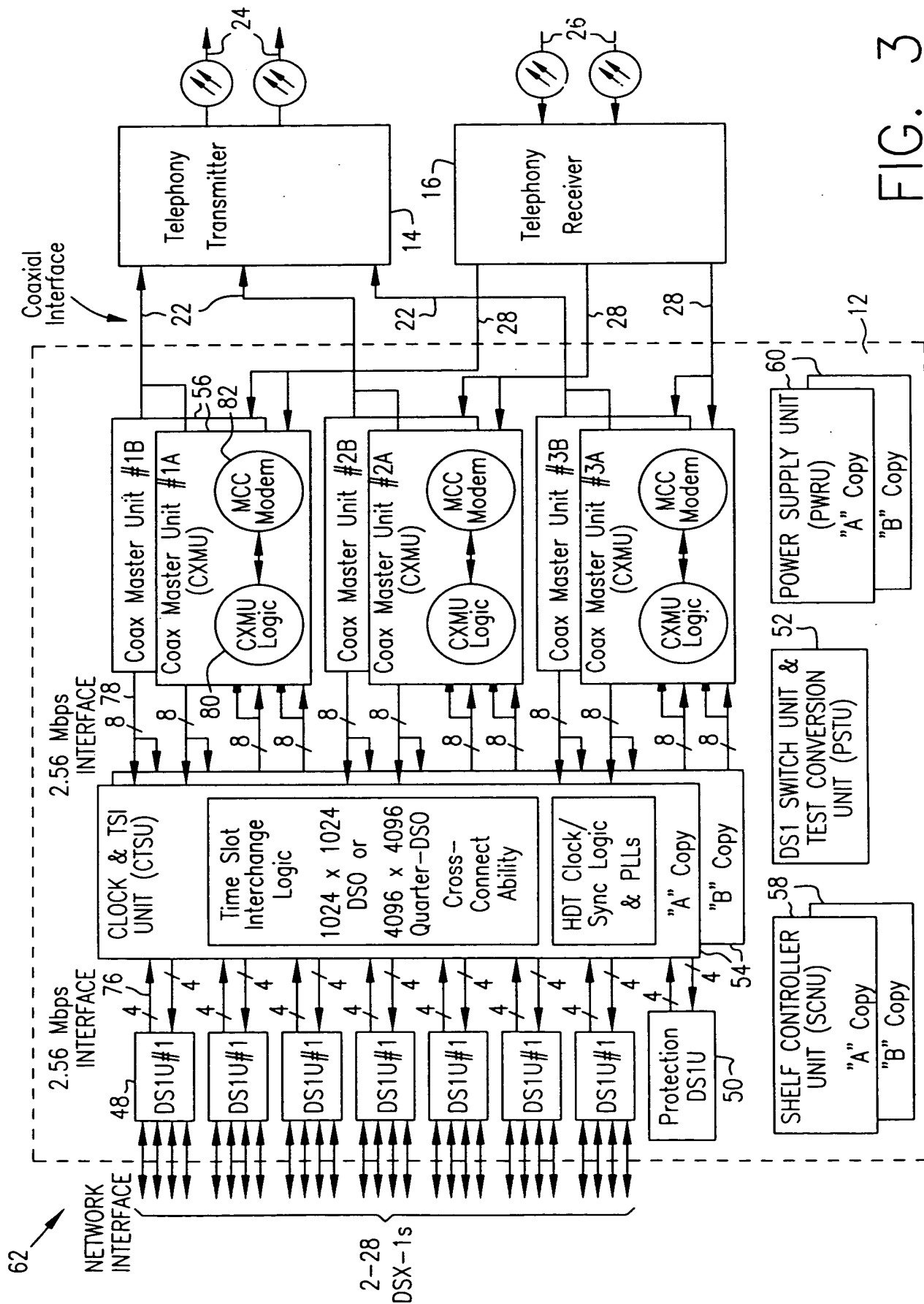


FIG. 2



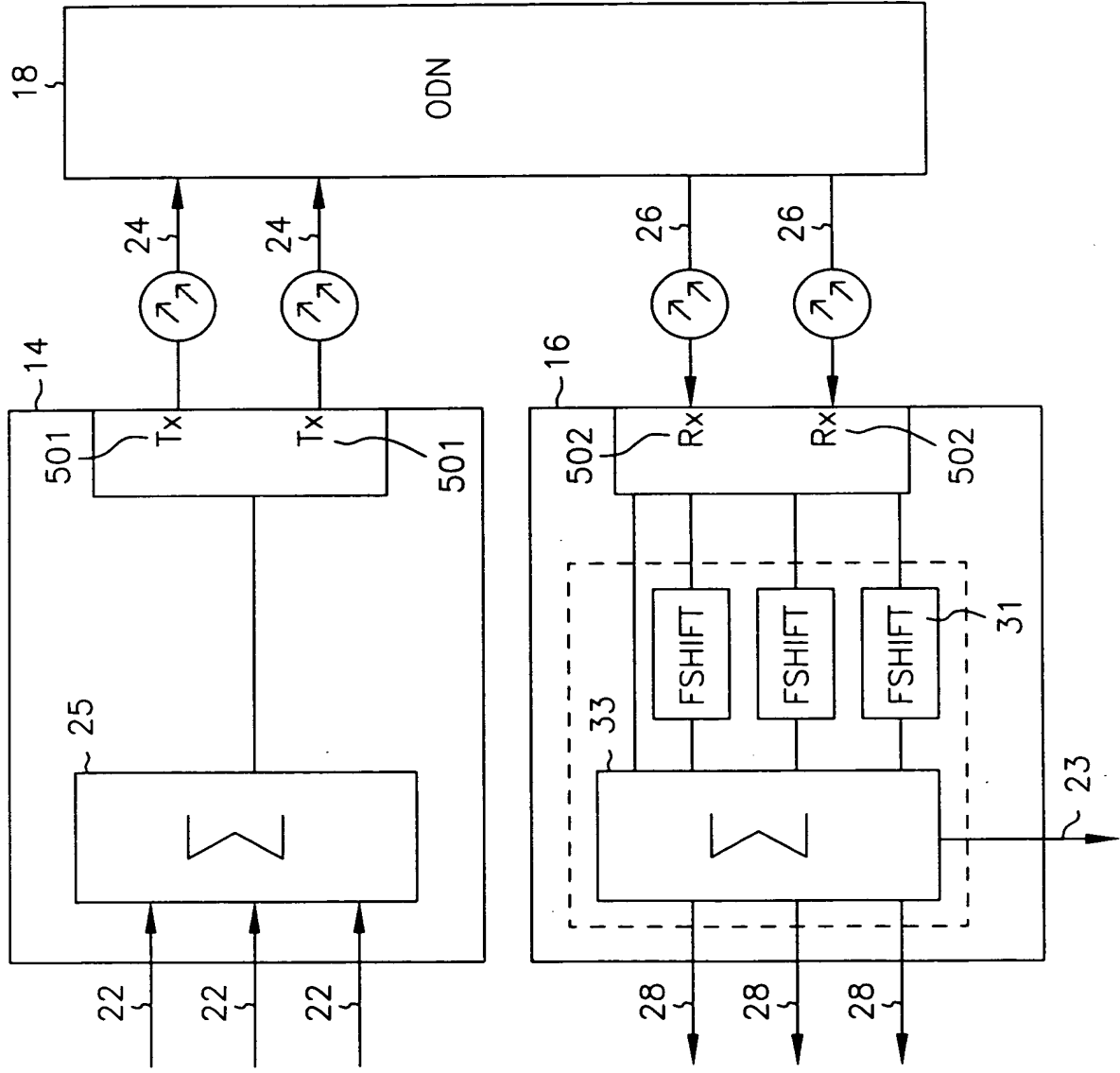


FIG. 4

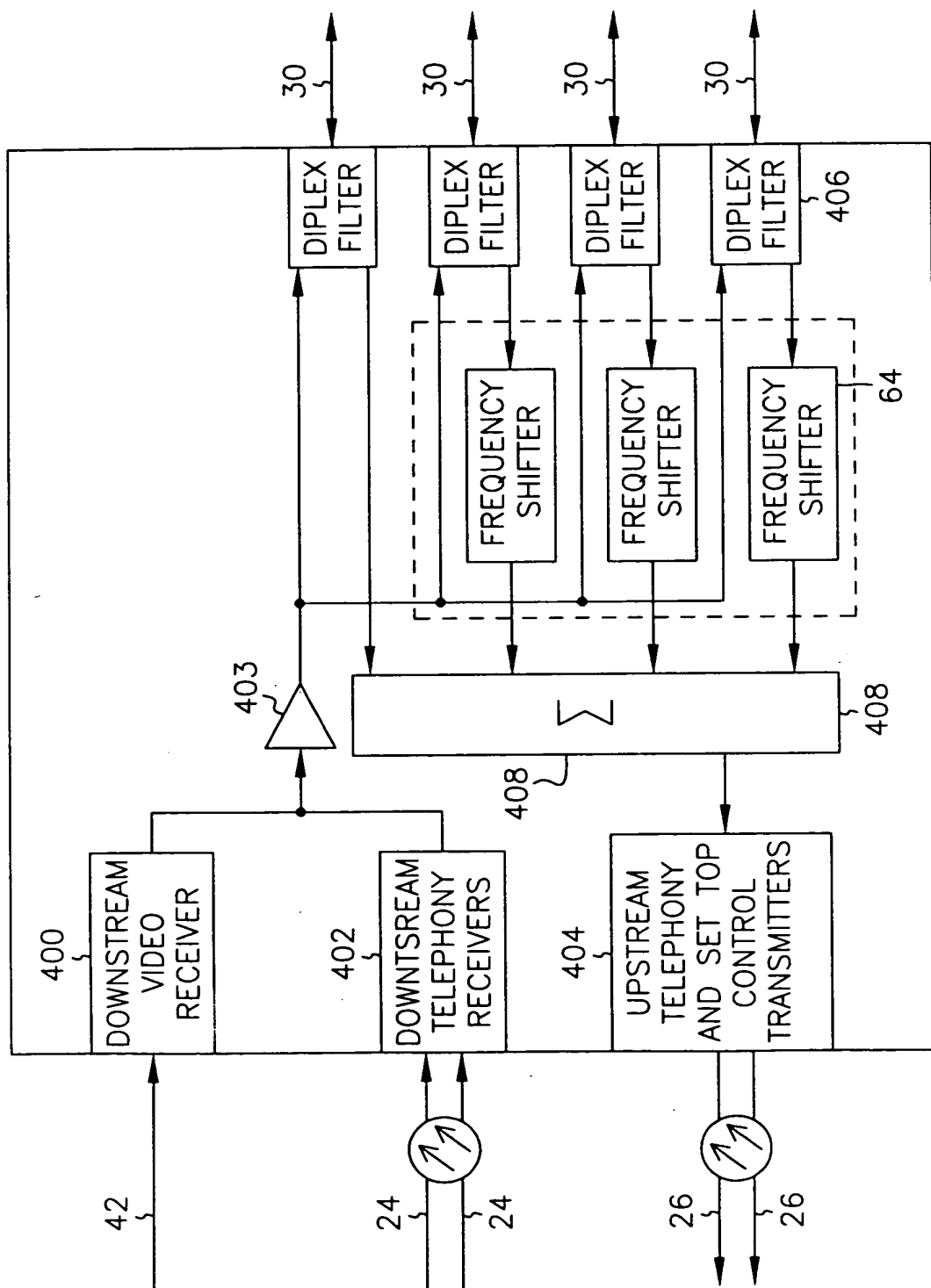
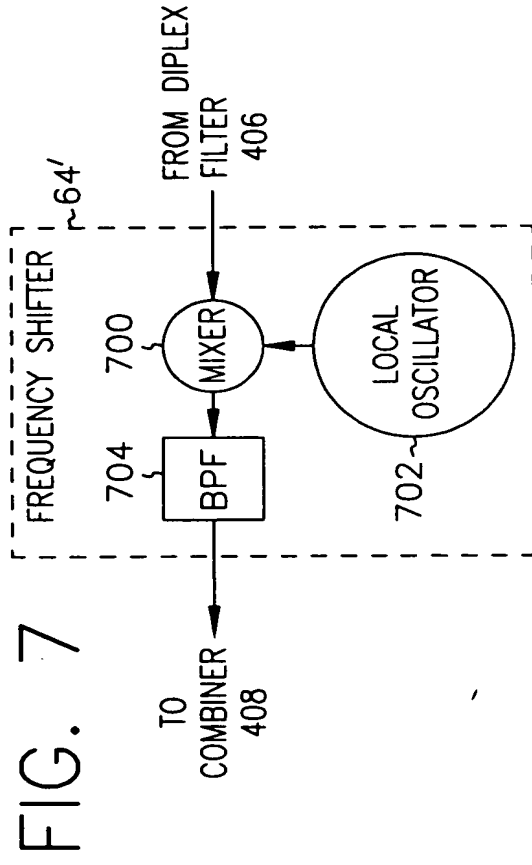
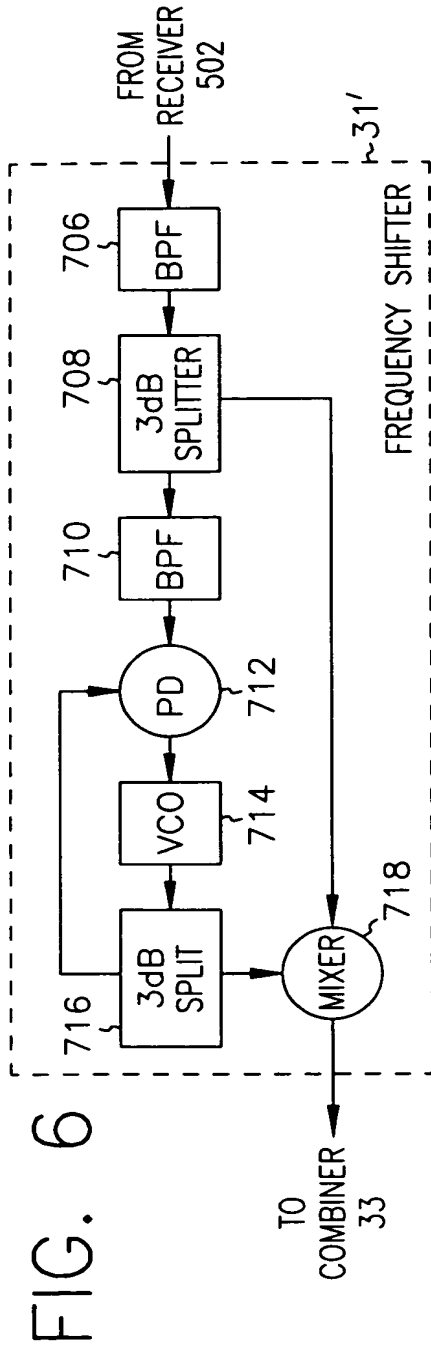


FIG. 5



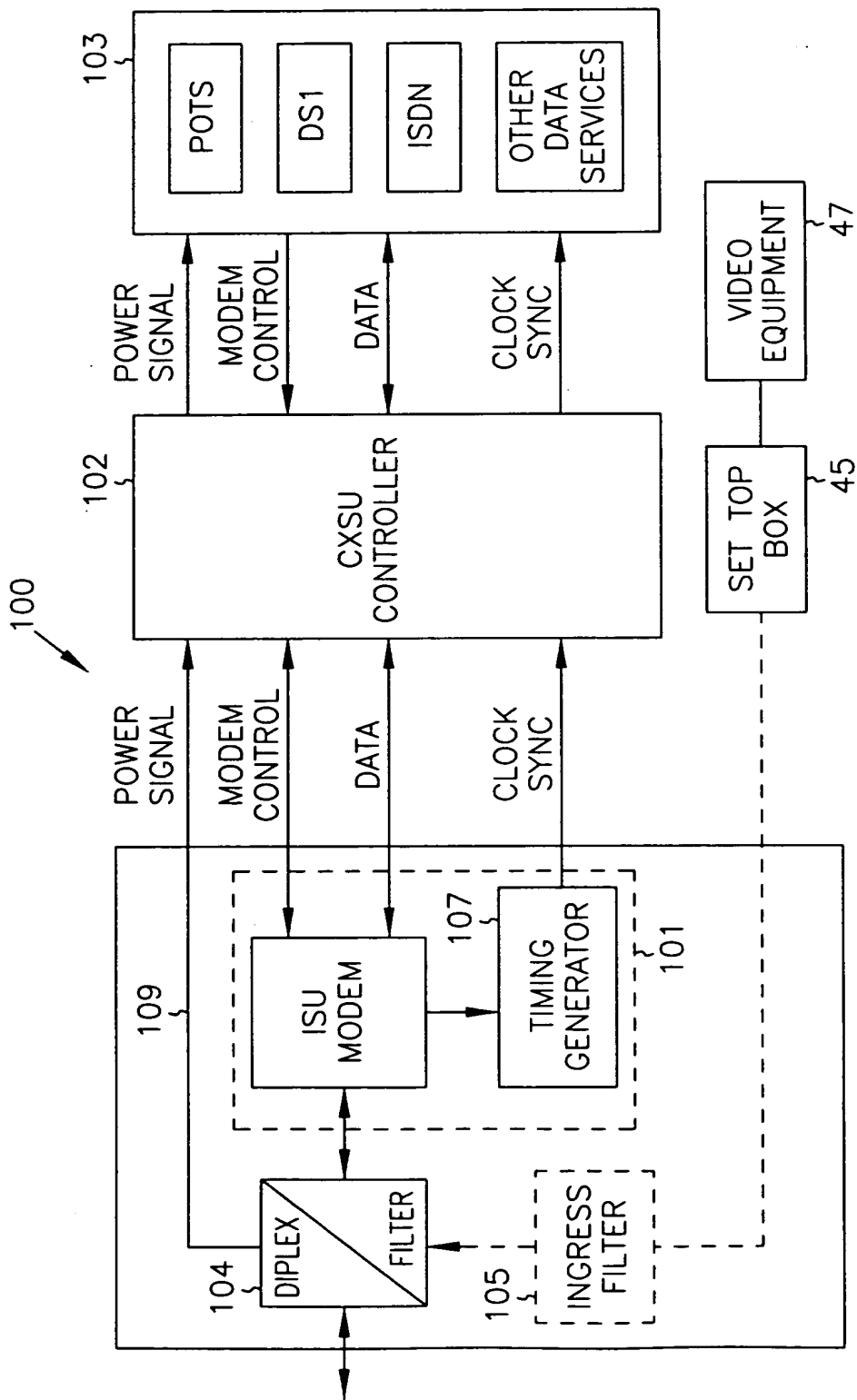


FIG. 8

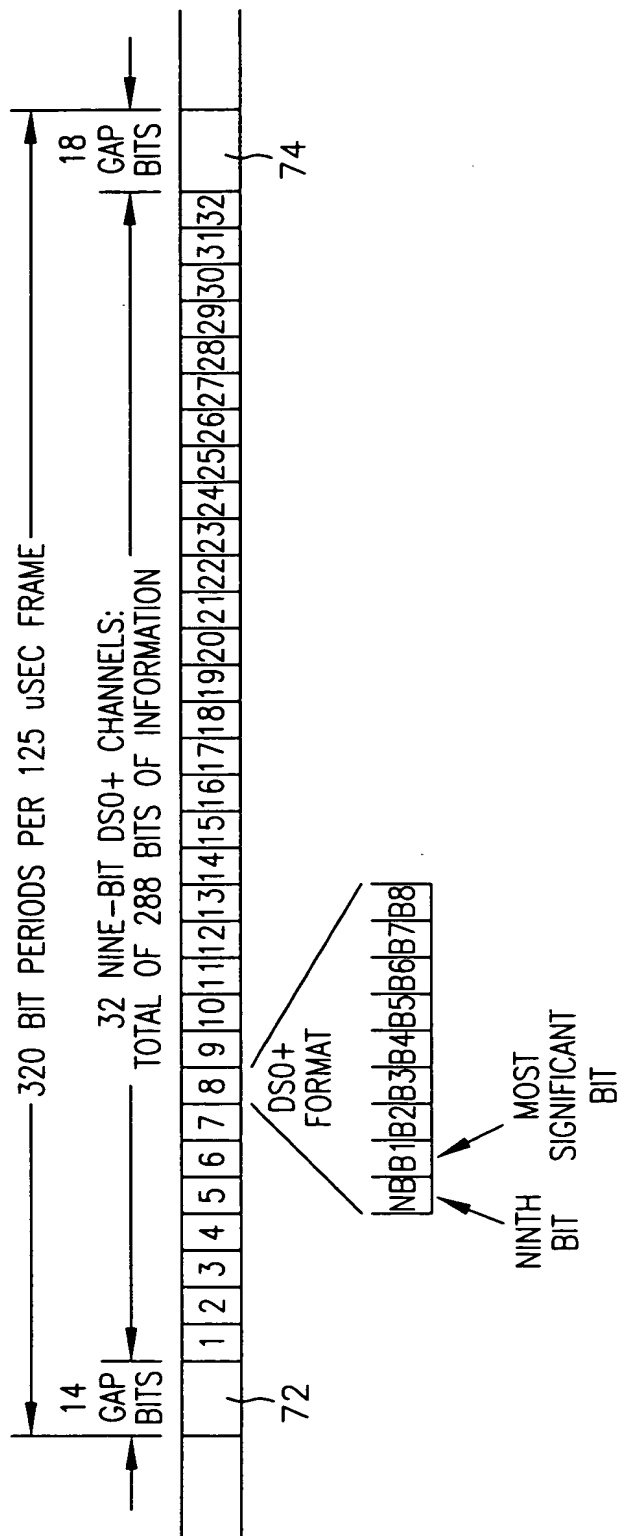


FIG. 9

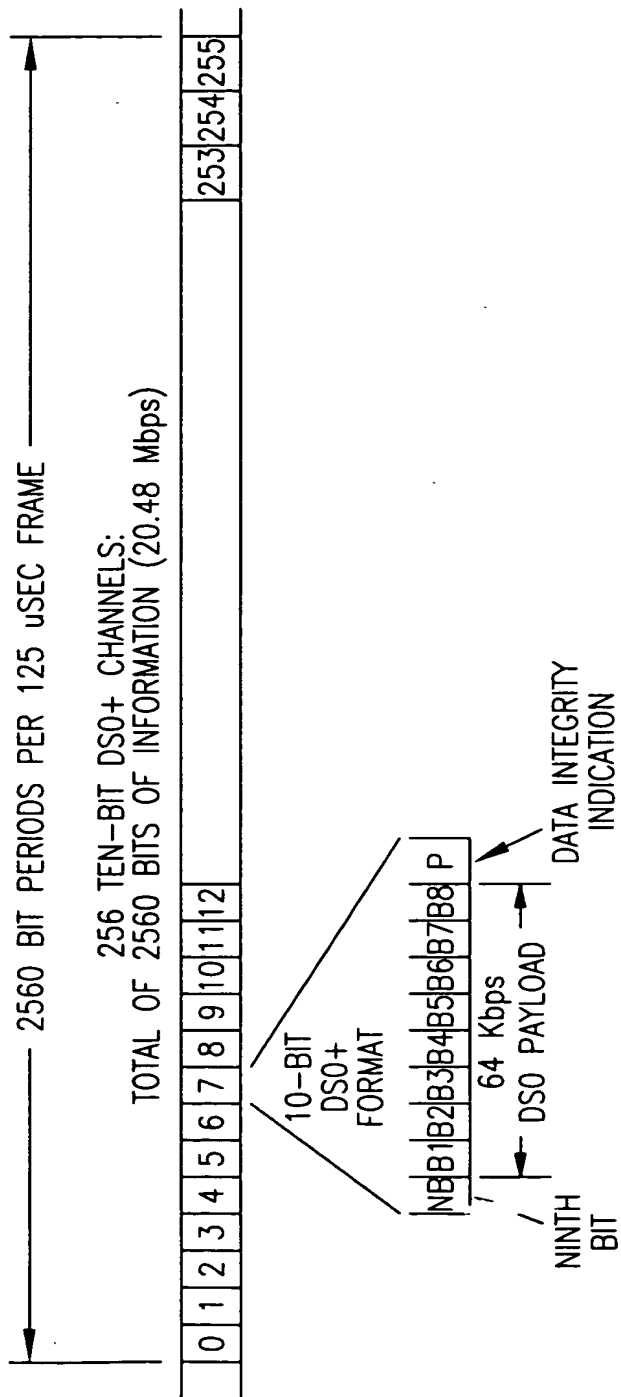


FIG. 10

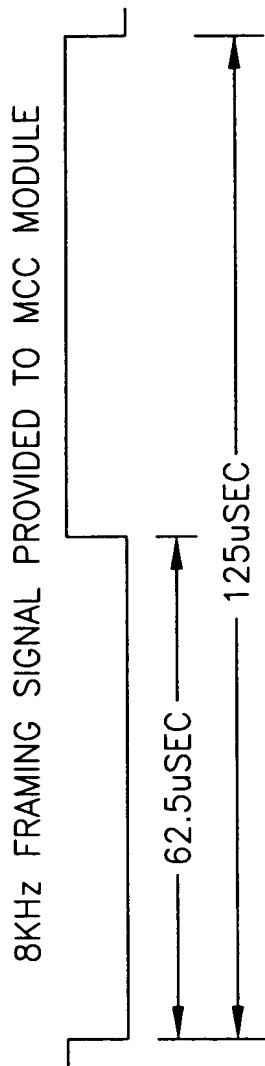


FIG. 11

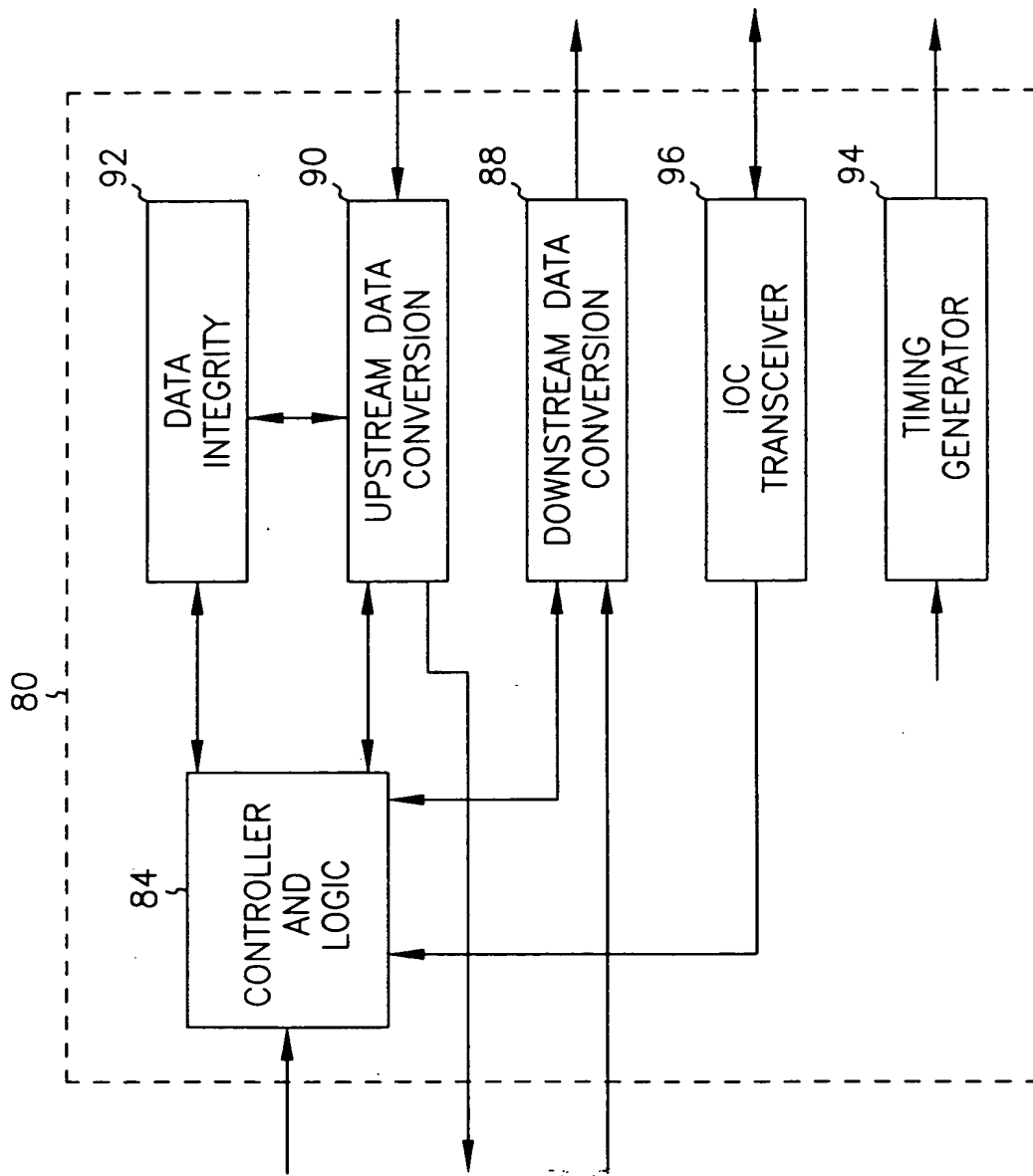


FIG. 12

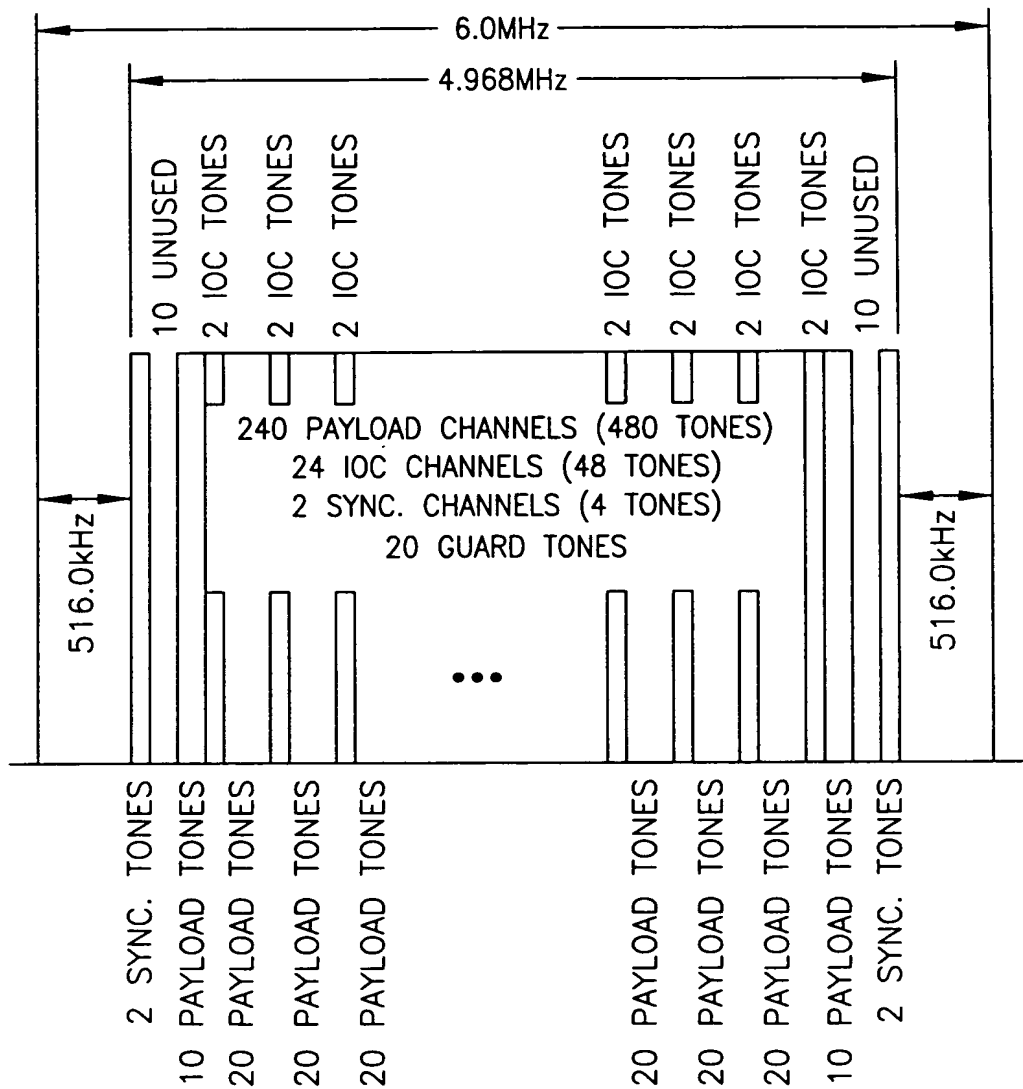


FIG. 13

○ USED IN RECEIVE ONLY • TRANSMIT POINTS

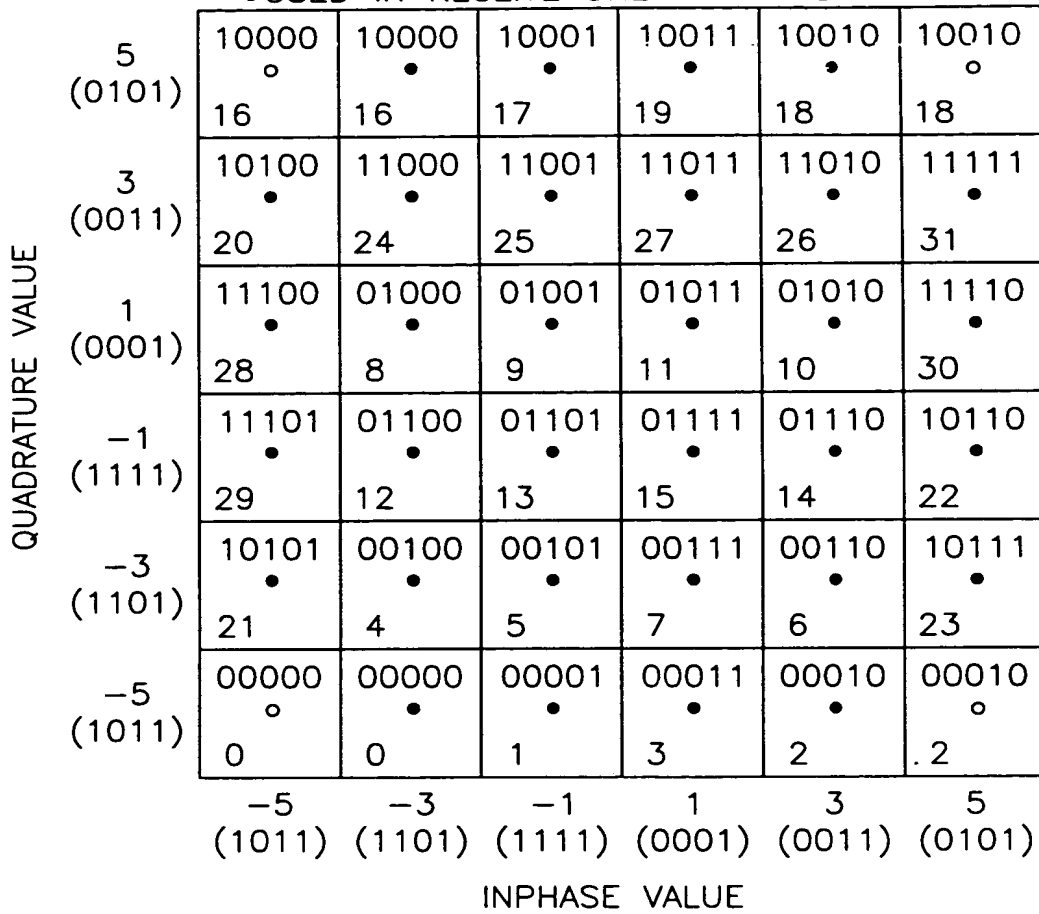


FIG. 14

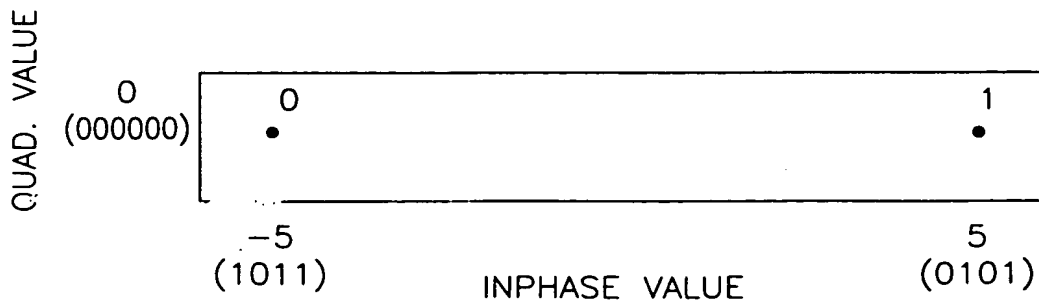


FIG. 15

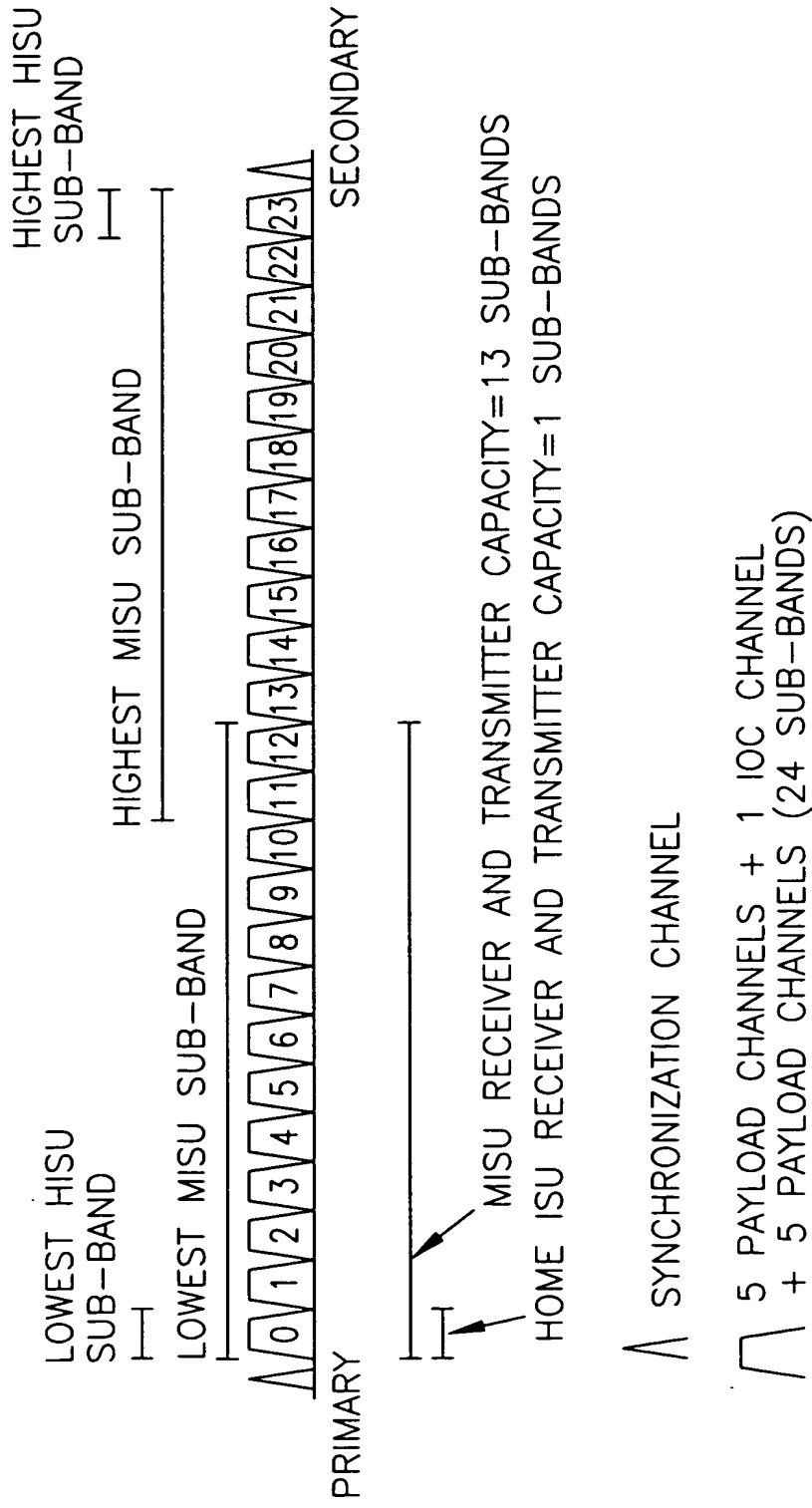


FIG. 16

FIG. 17

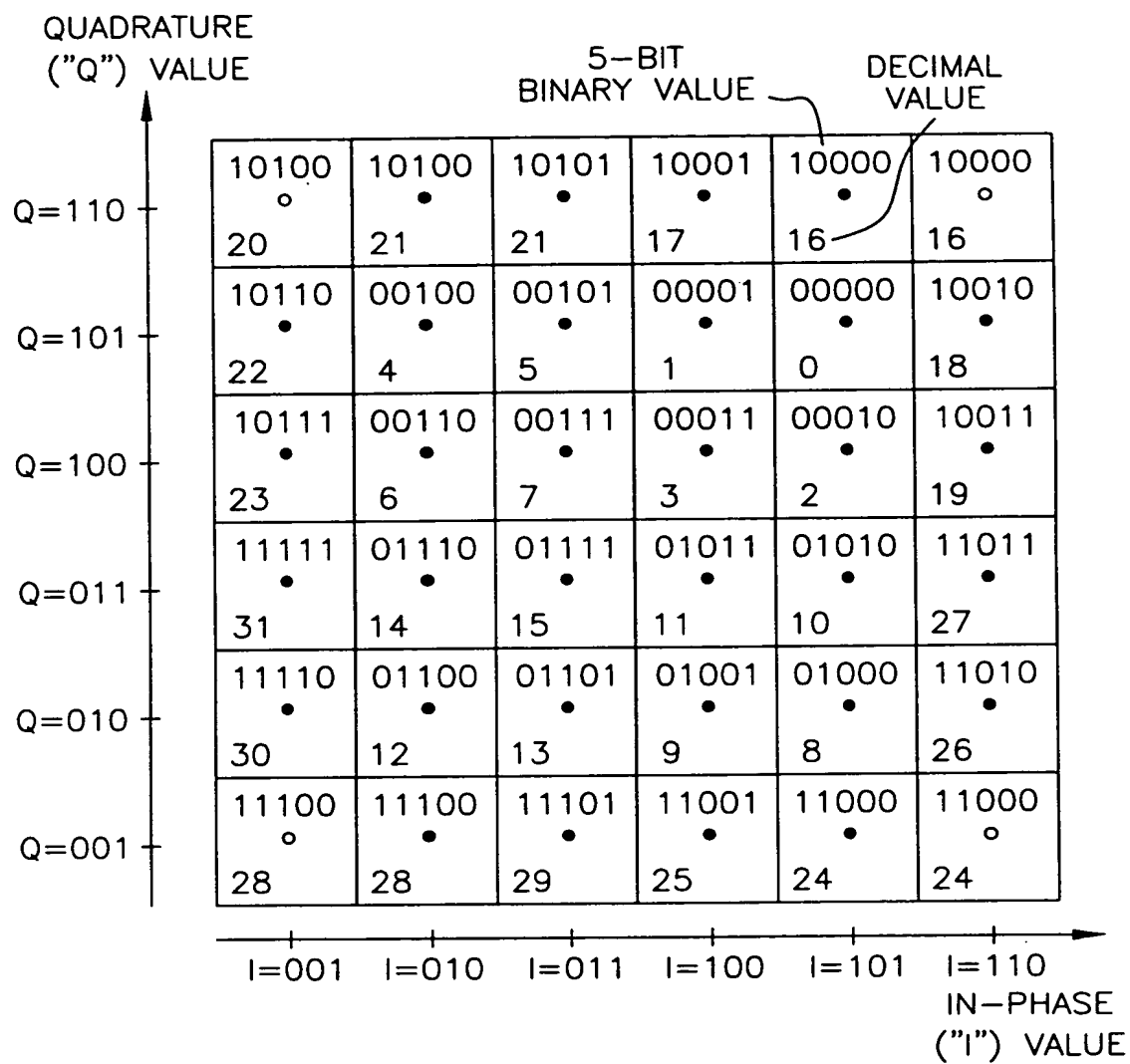


FIG. 17

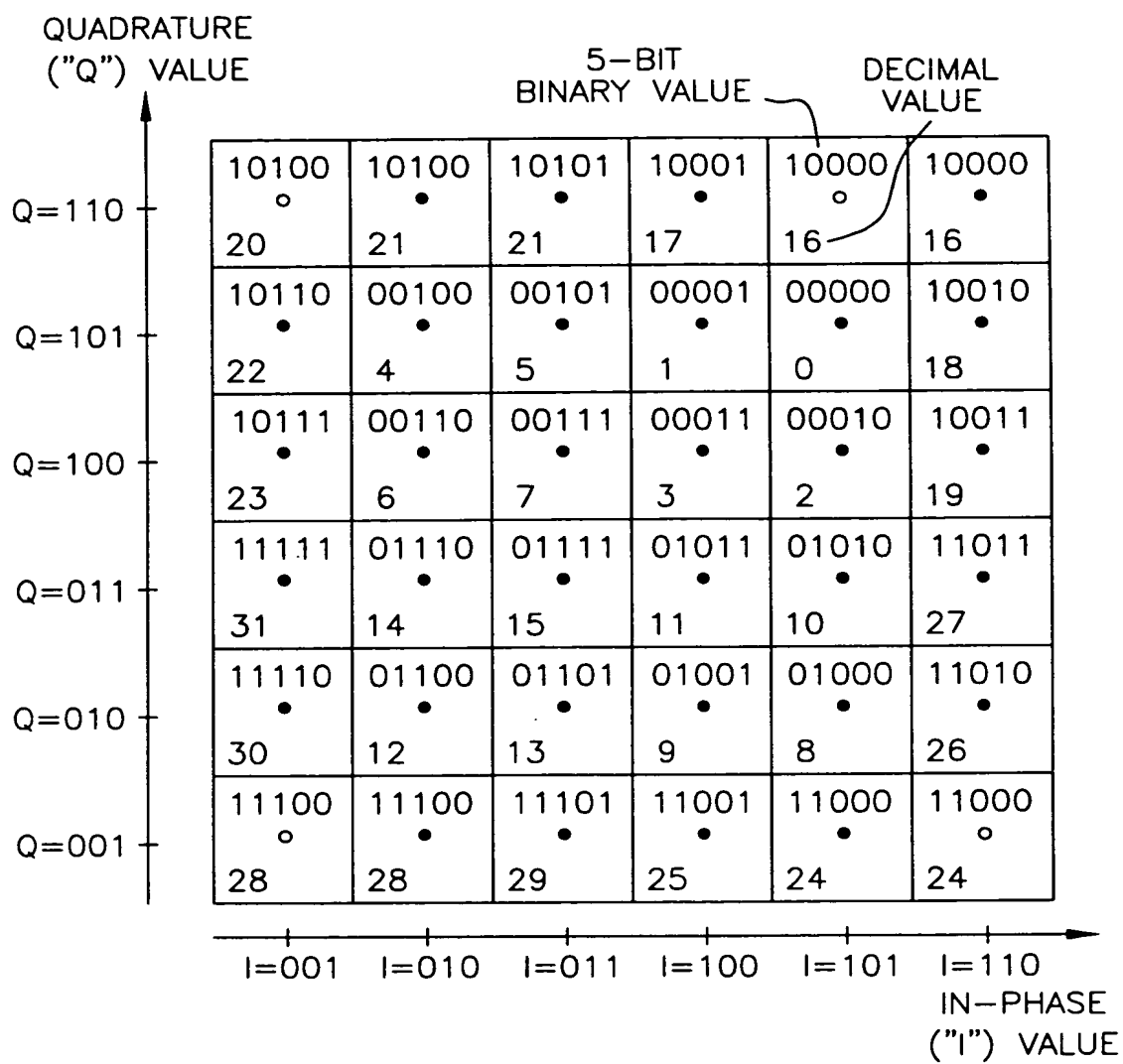


FIG. 18

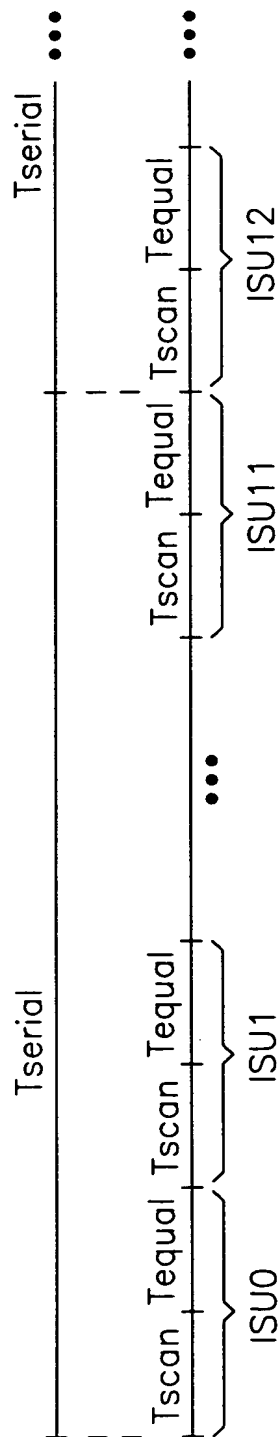


FIG. 19

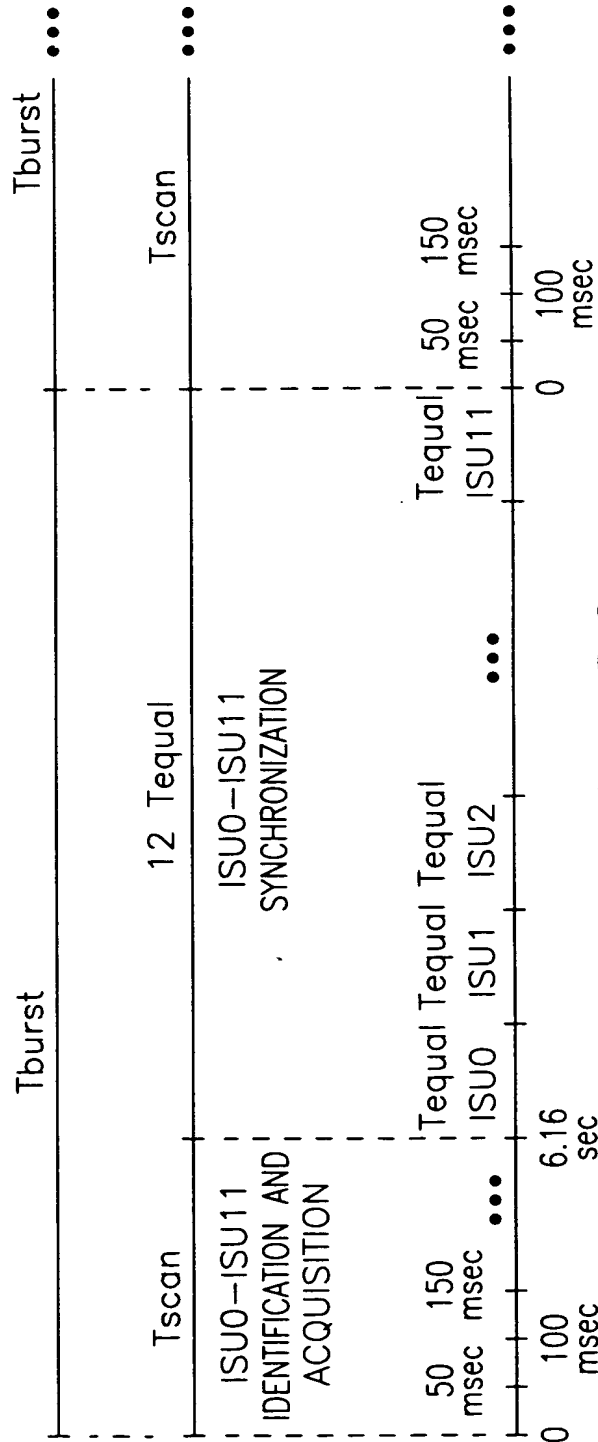


FIG. 20

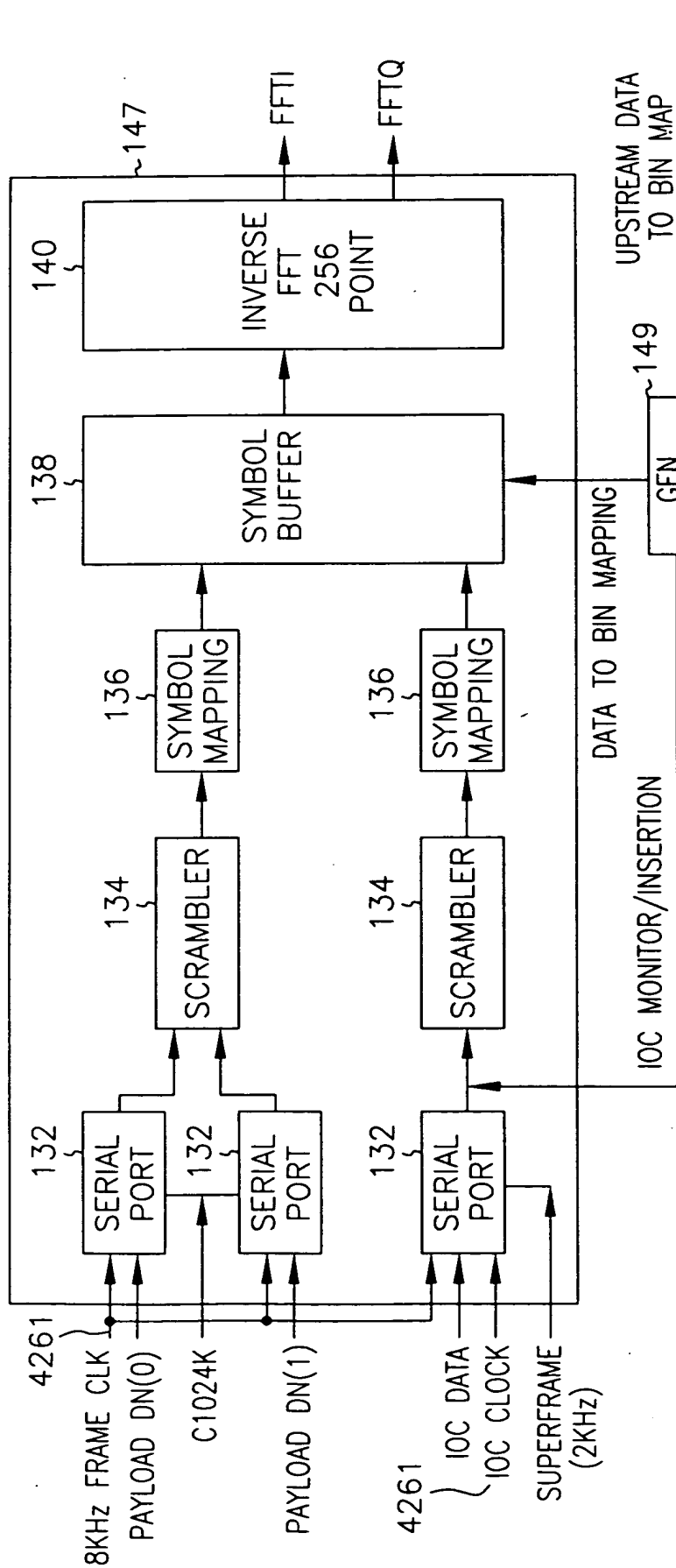
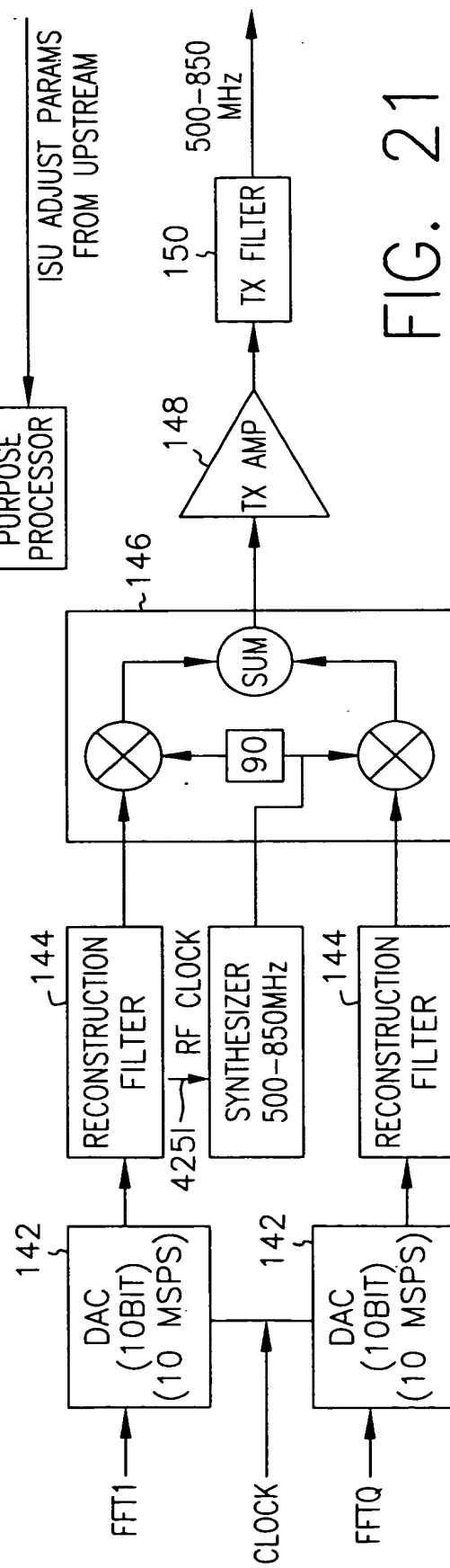


FIG. 21



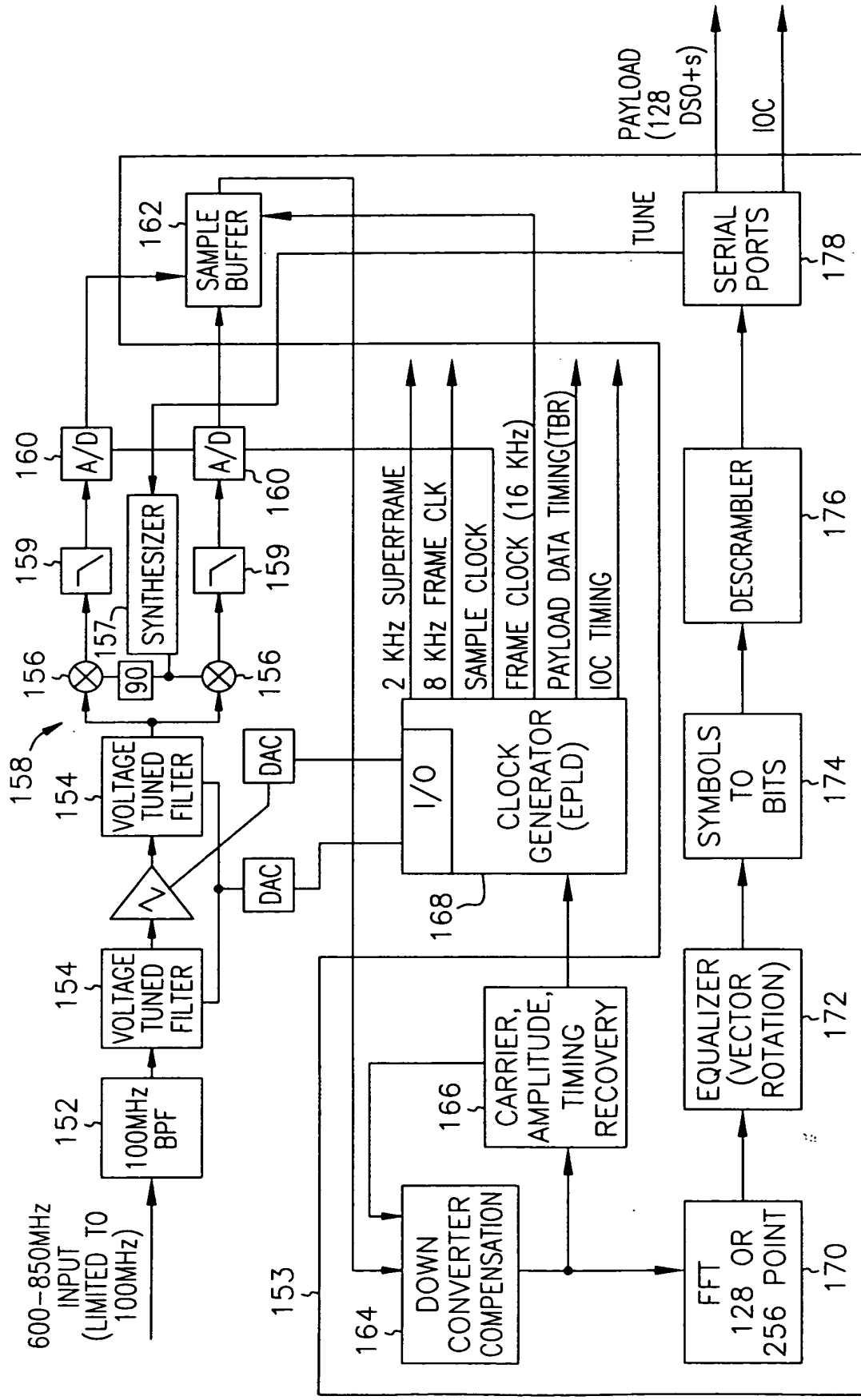
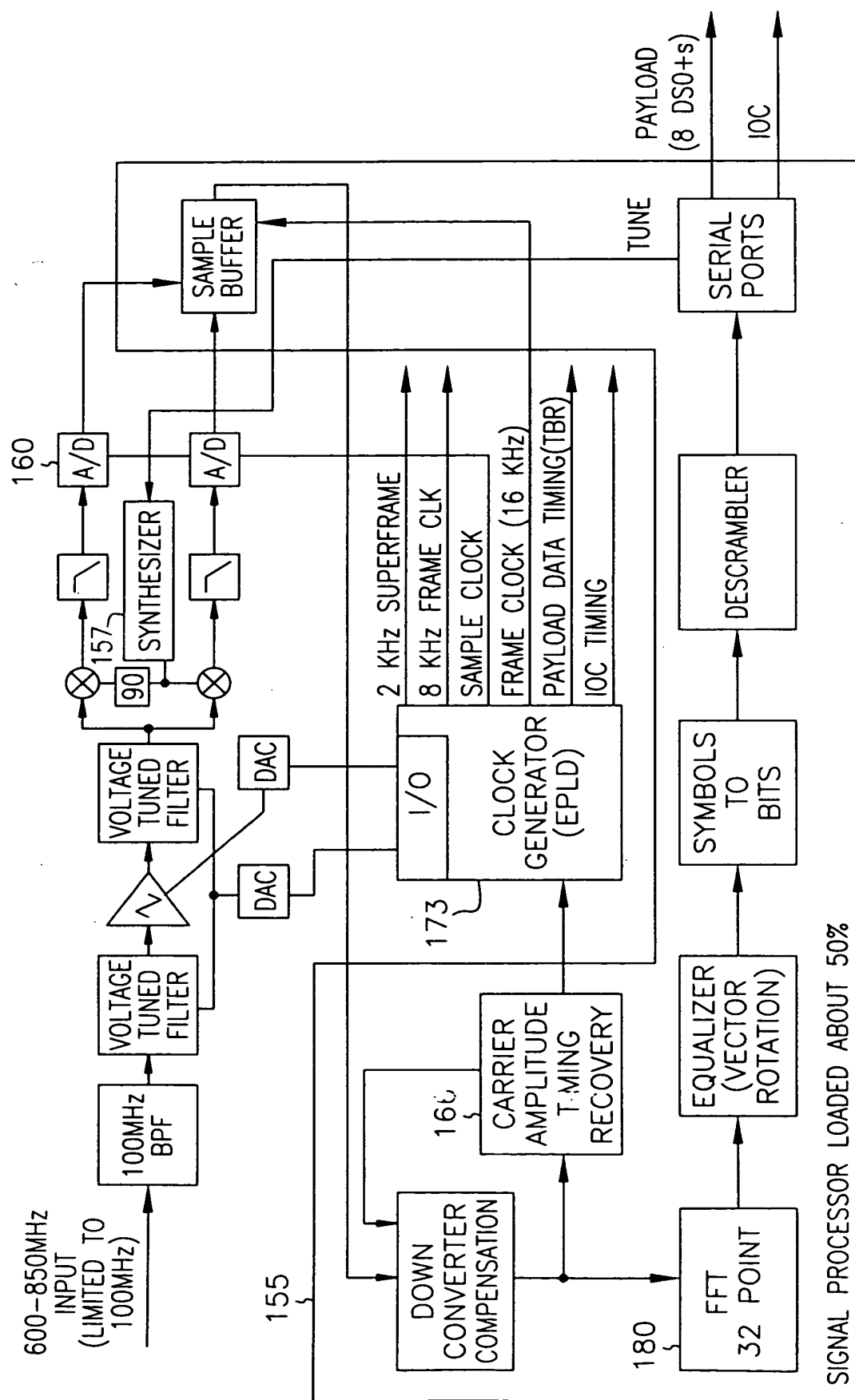
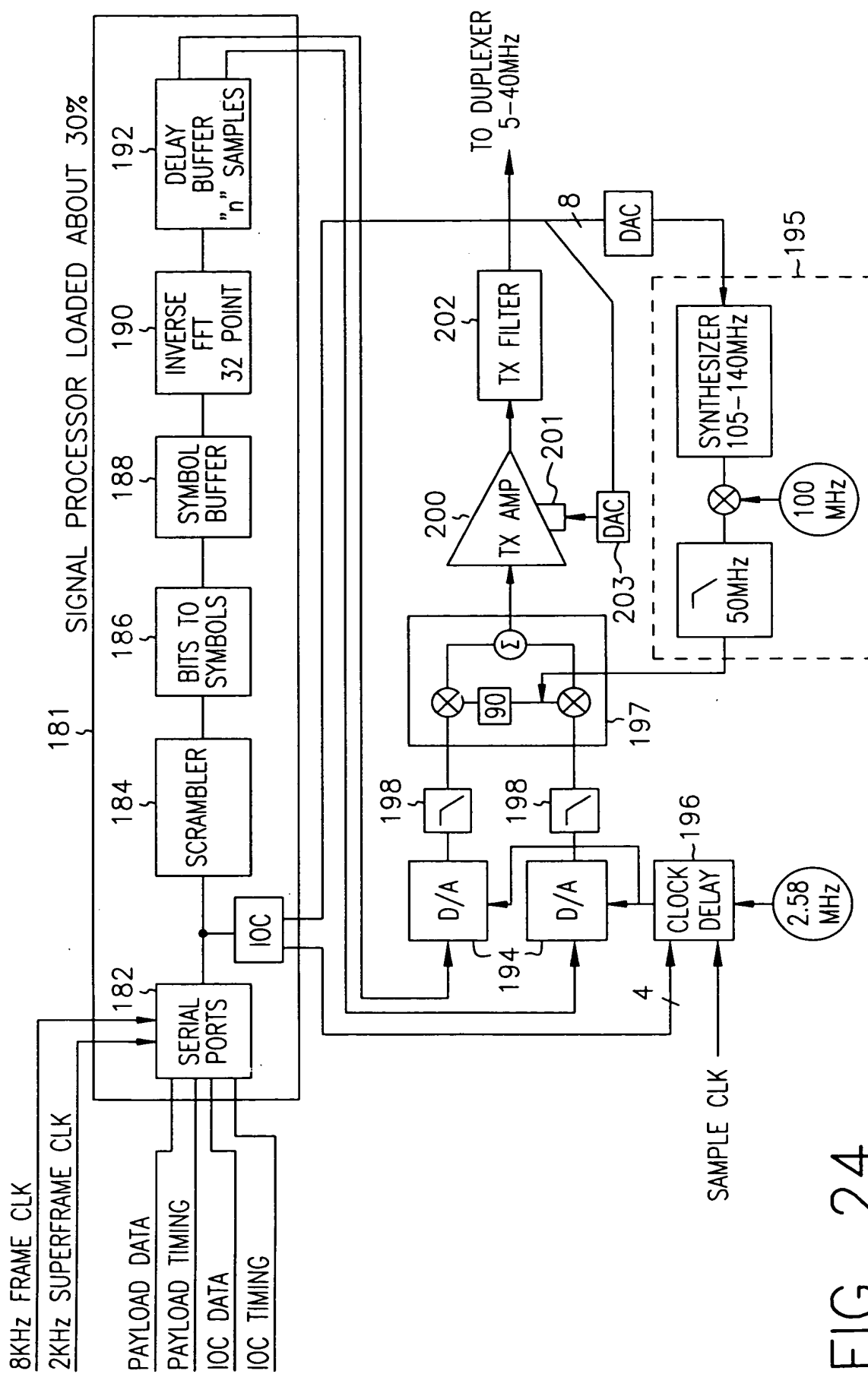


FIG. 22



[illegible]

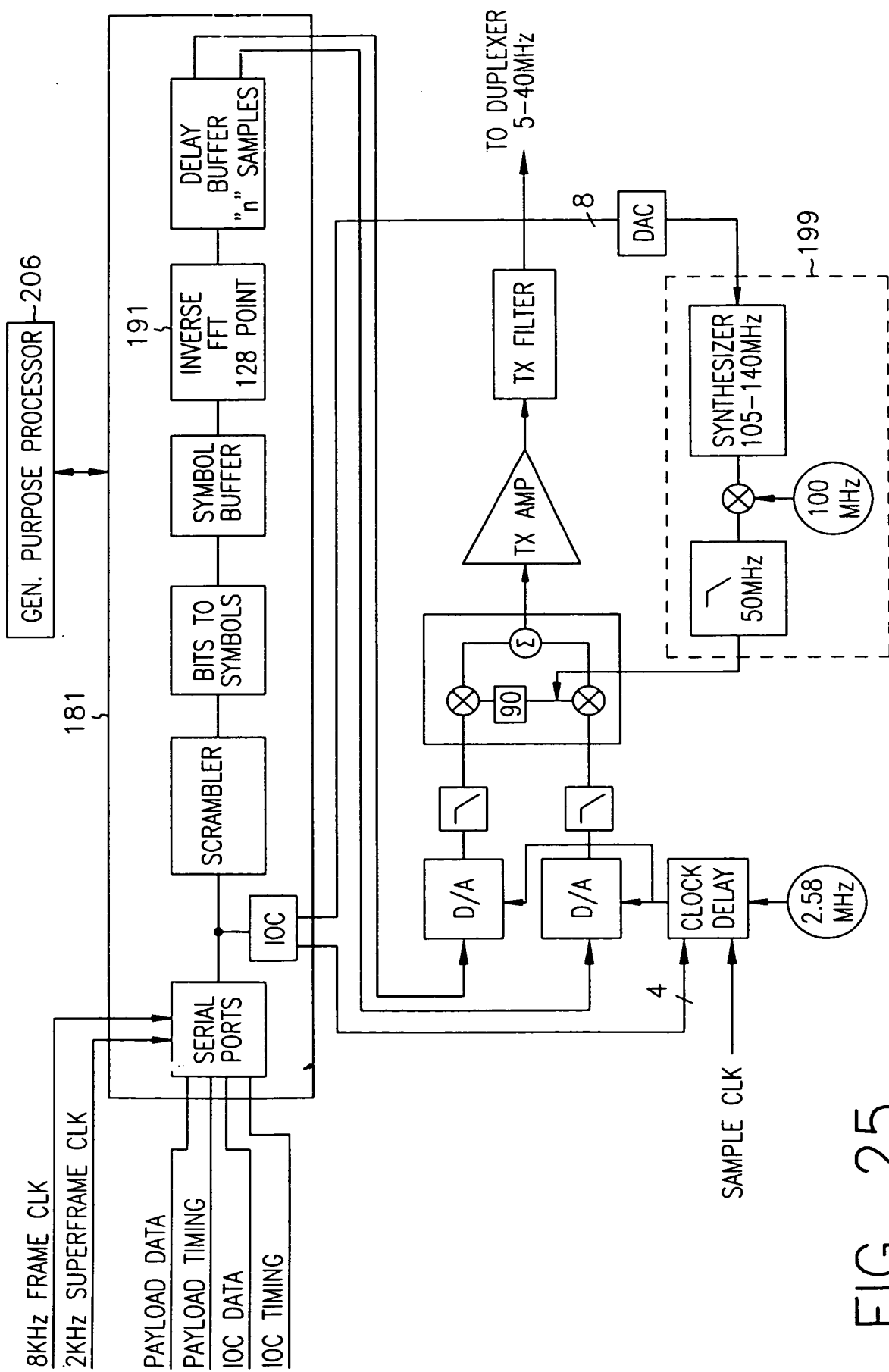


FIG. 25

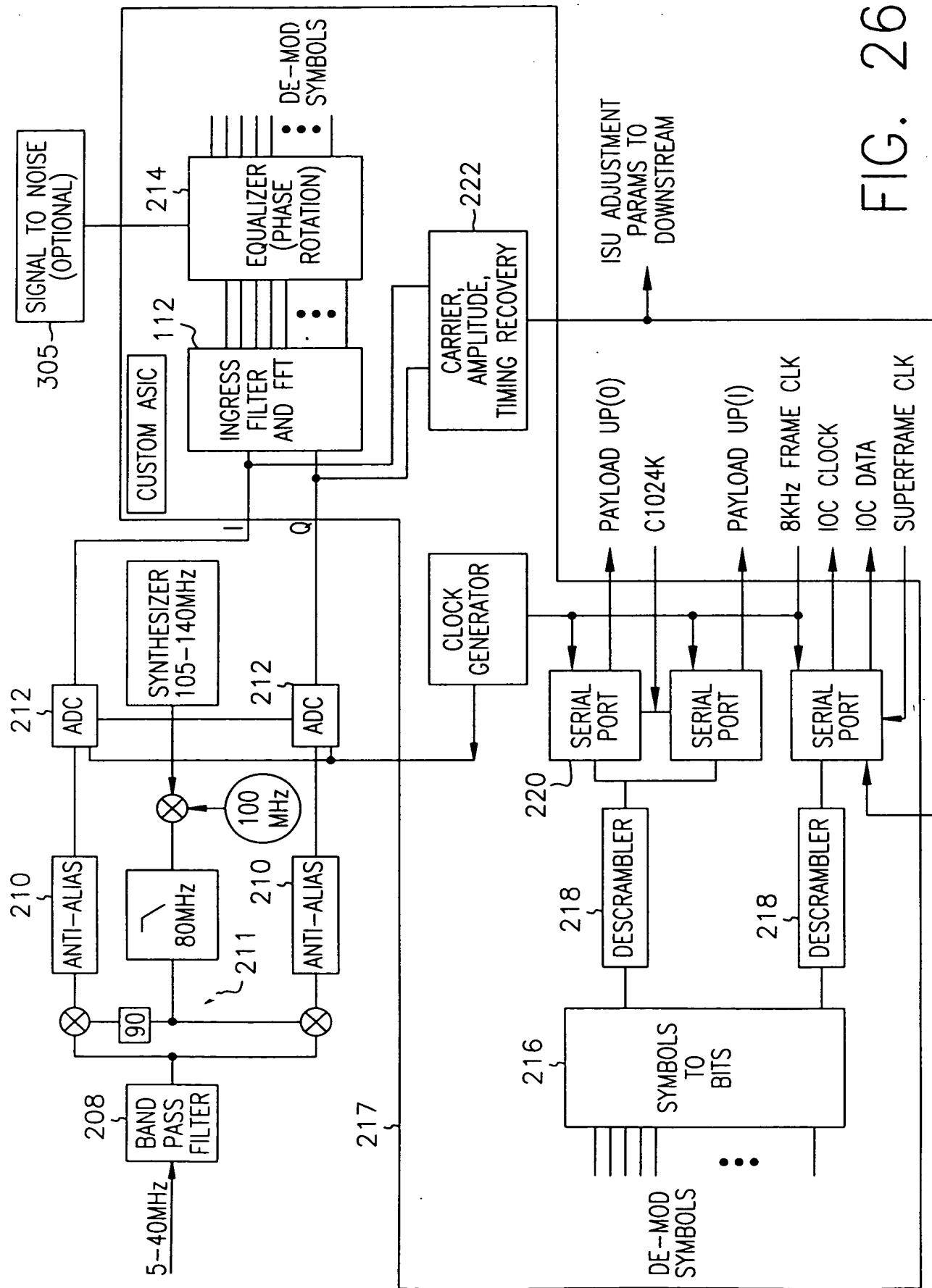


FIG. 26

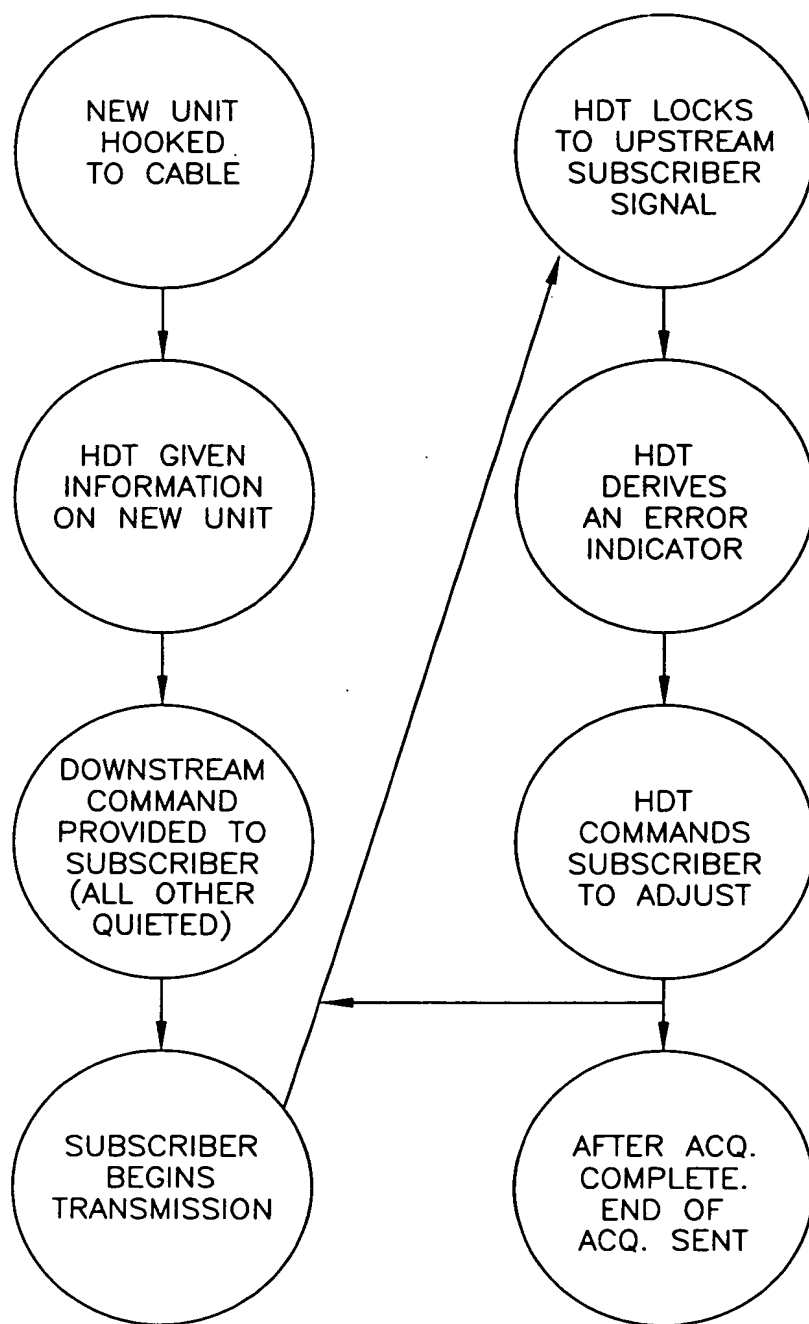


FIG. 27

TOP SECRET

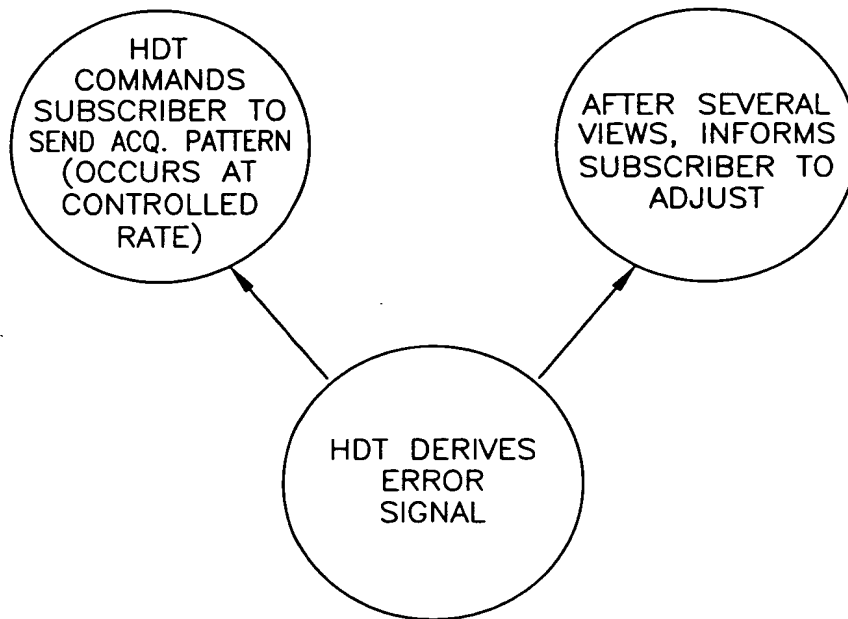


FIG. 28

TOP SECRET

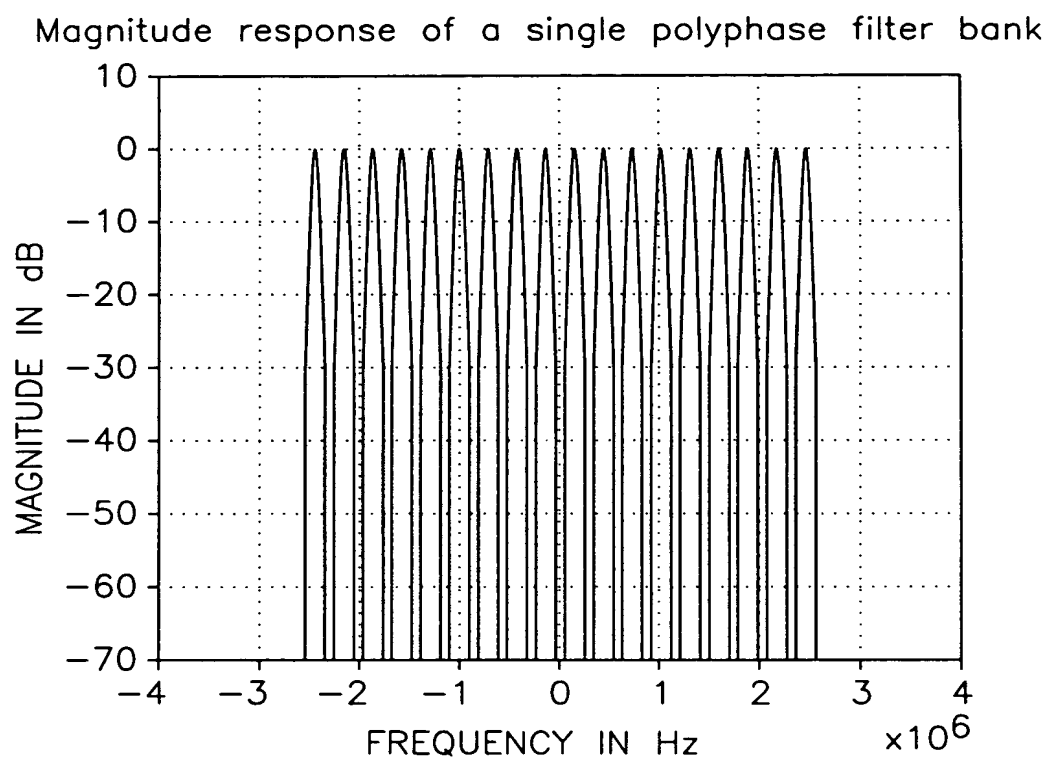


FIG. 29

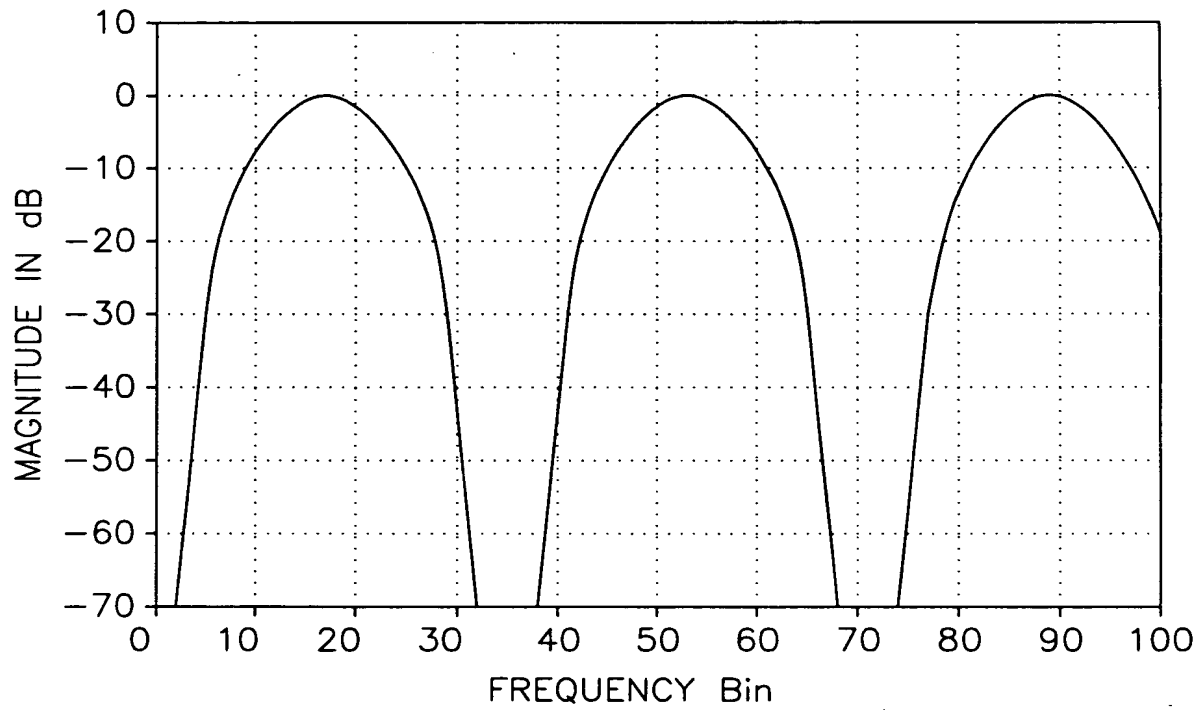


FIG. 30

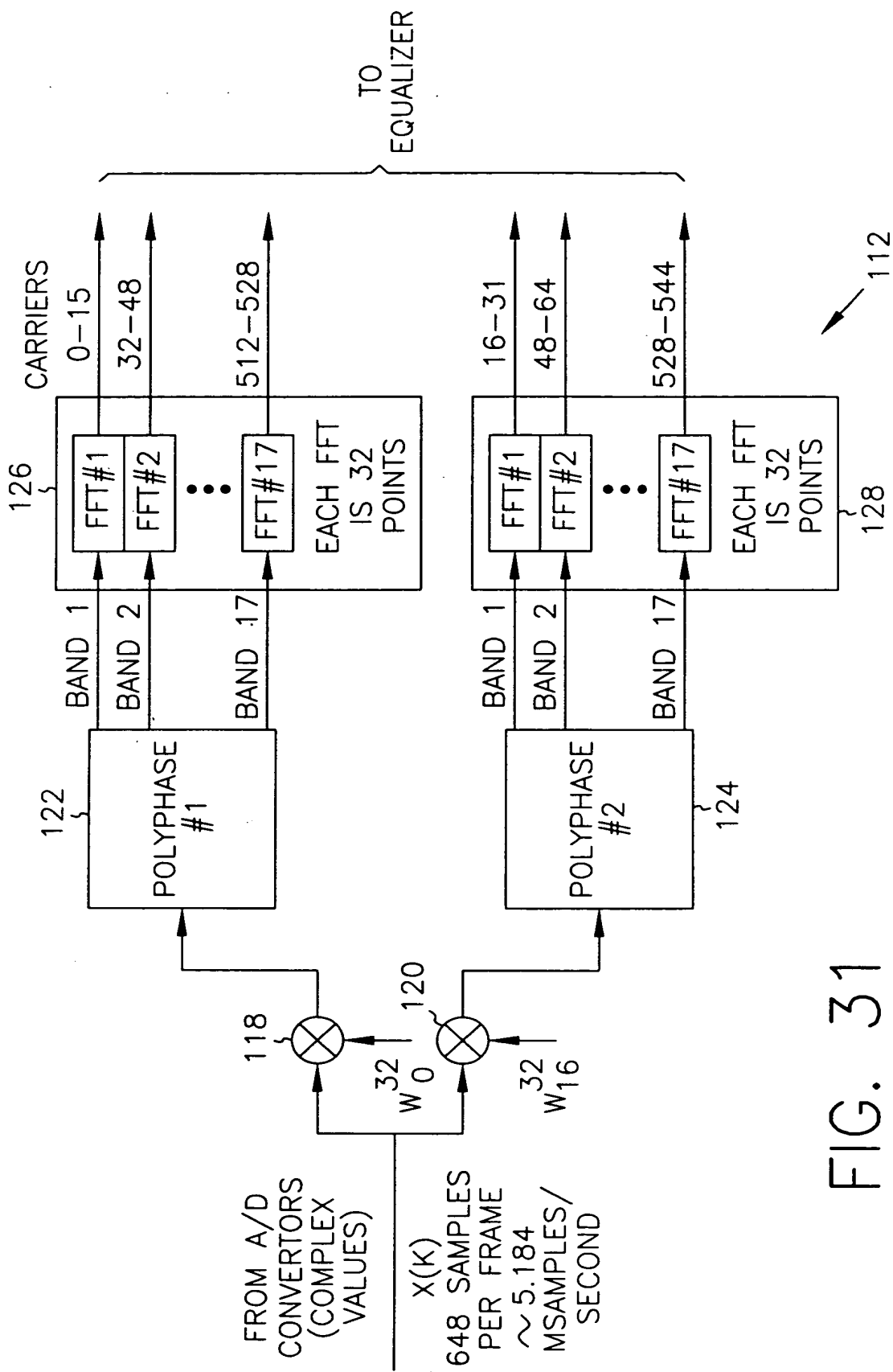


FIG. 31

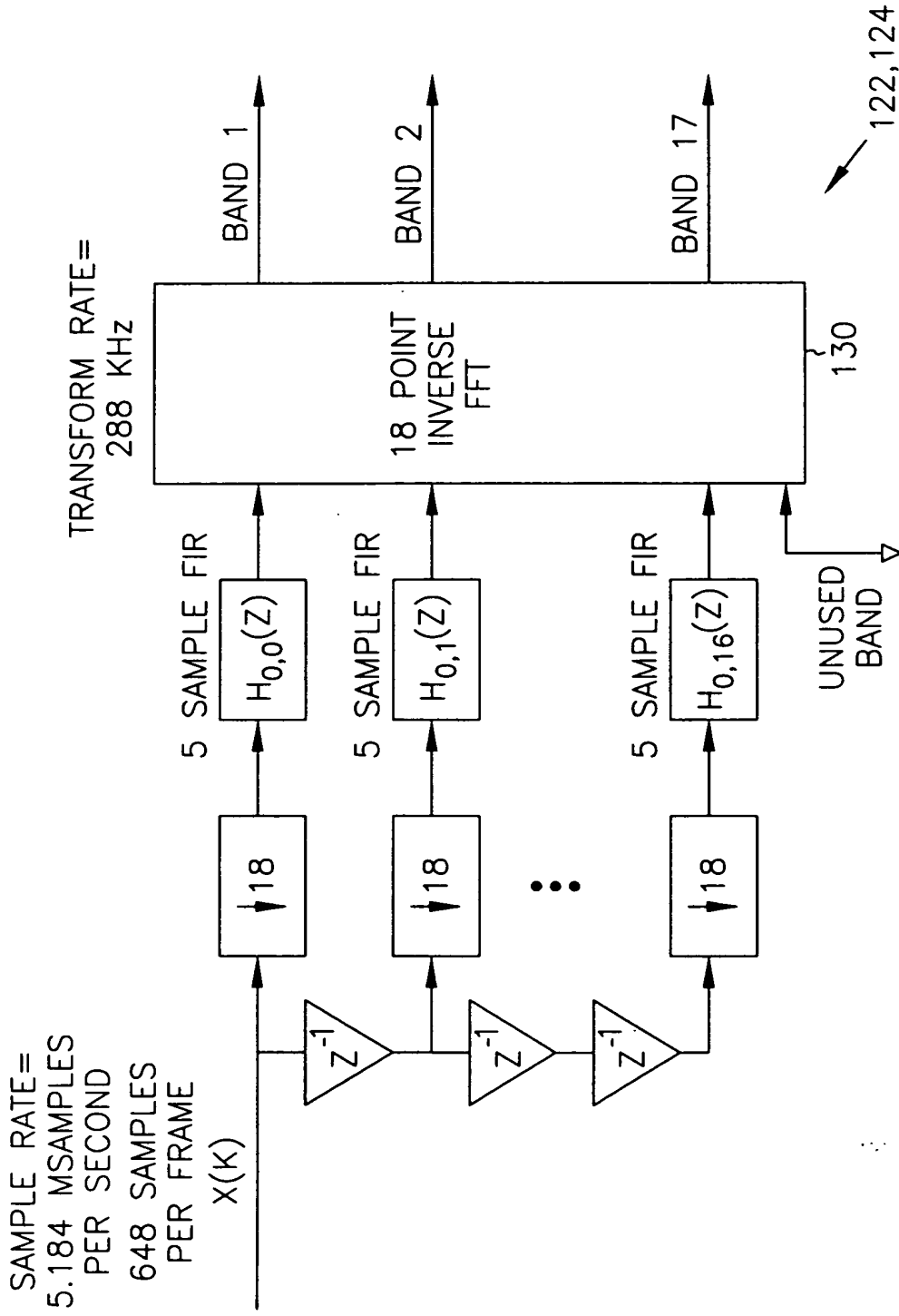
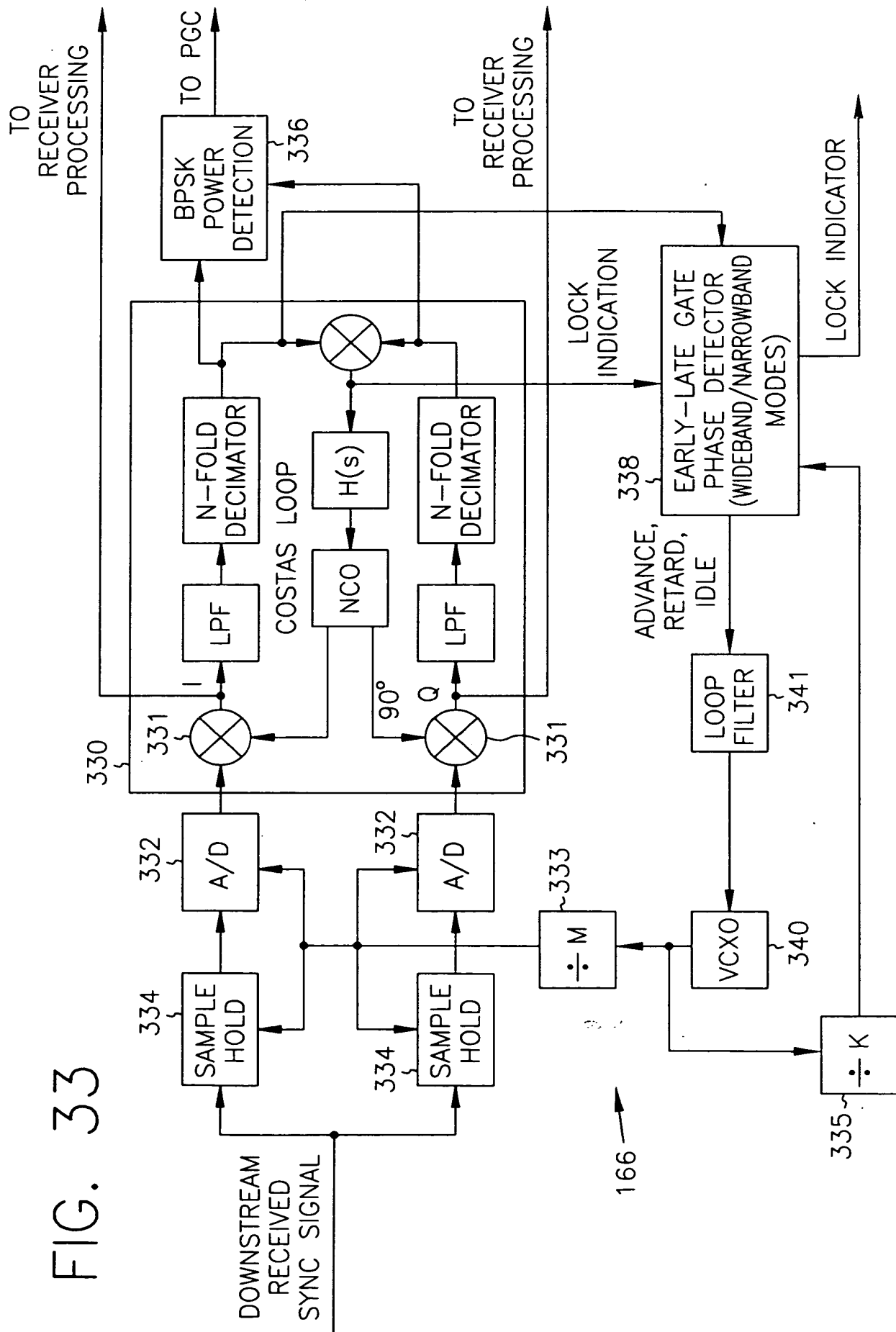
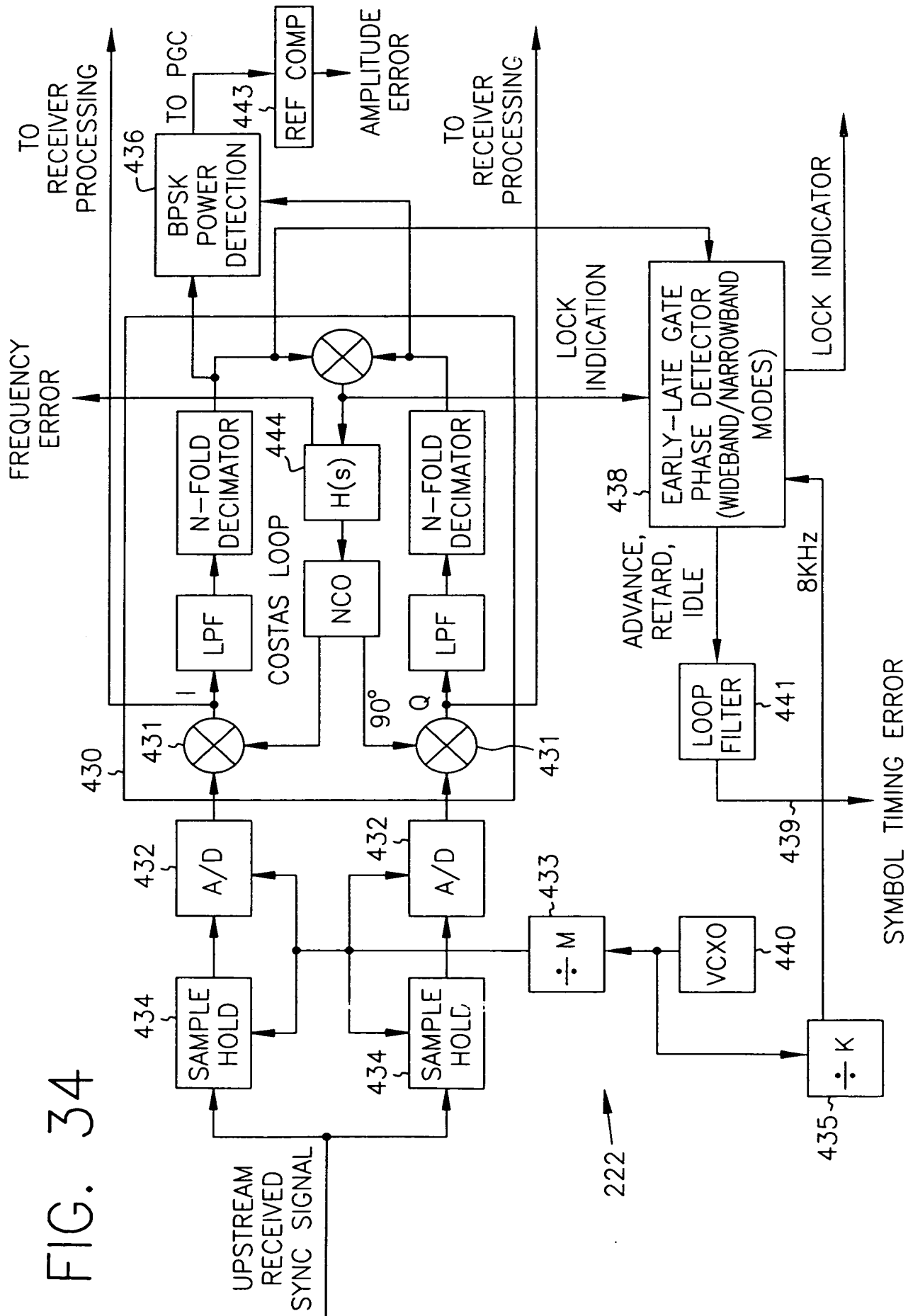


FIG. 32





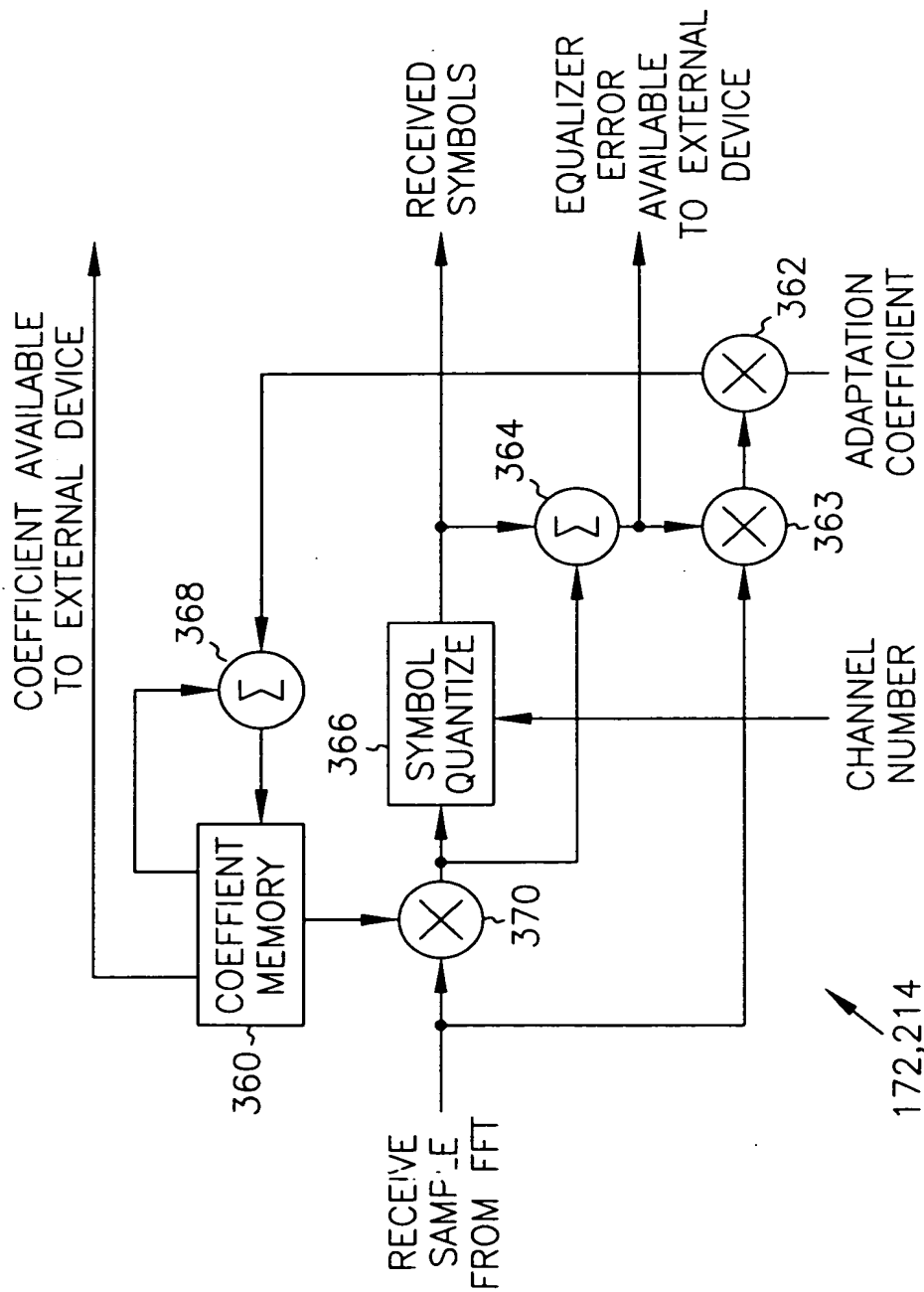


FIG. 35

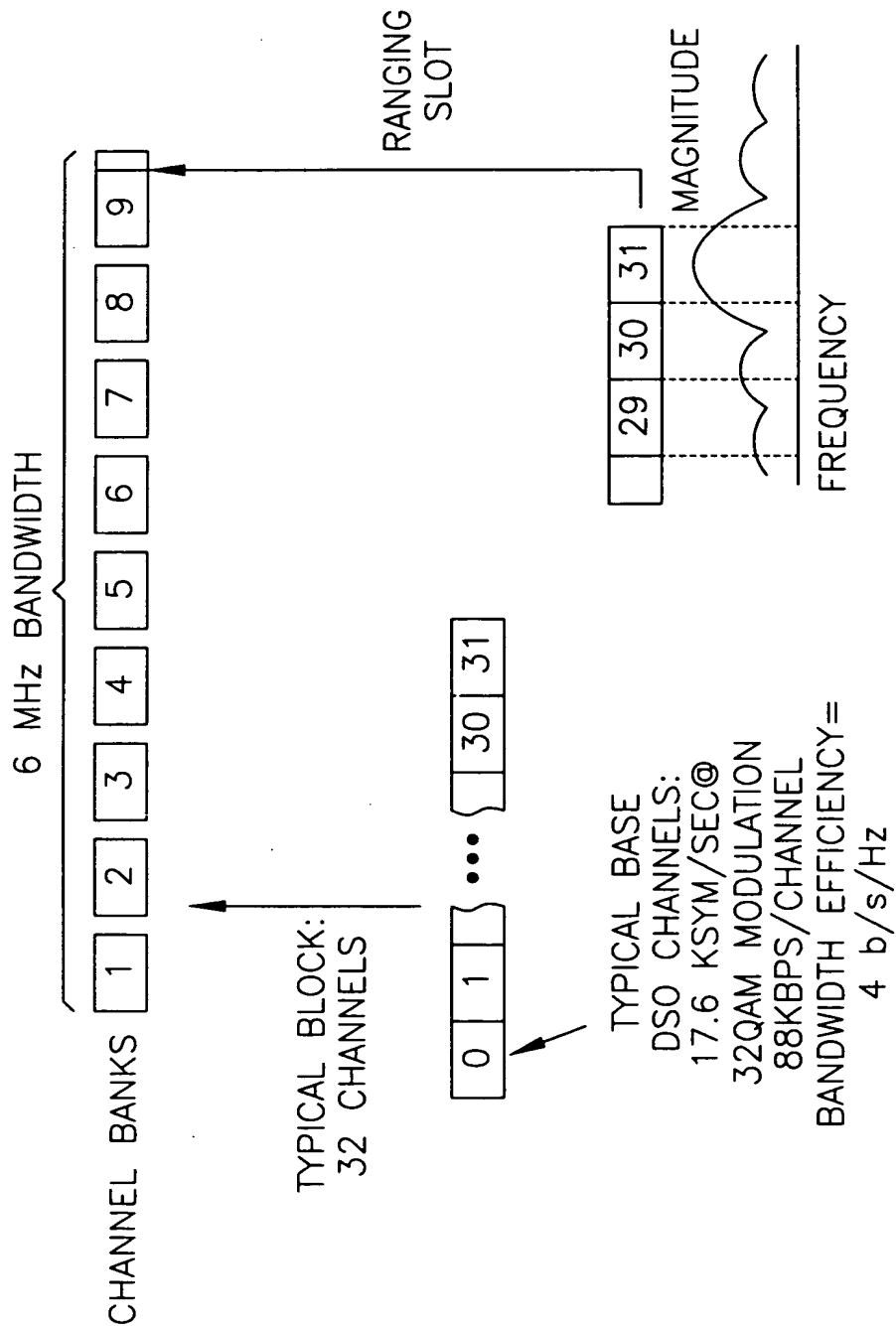


FIG. 36

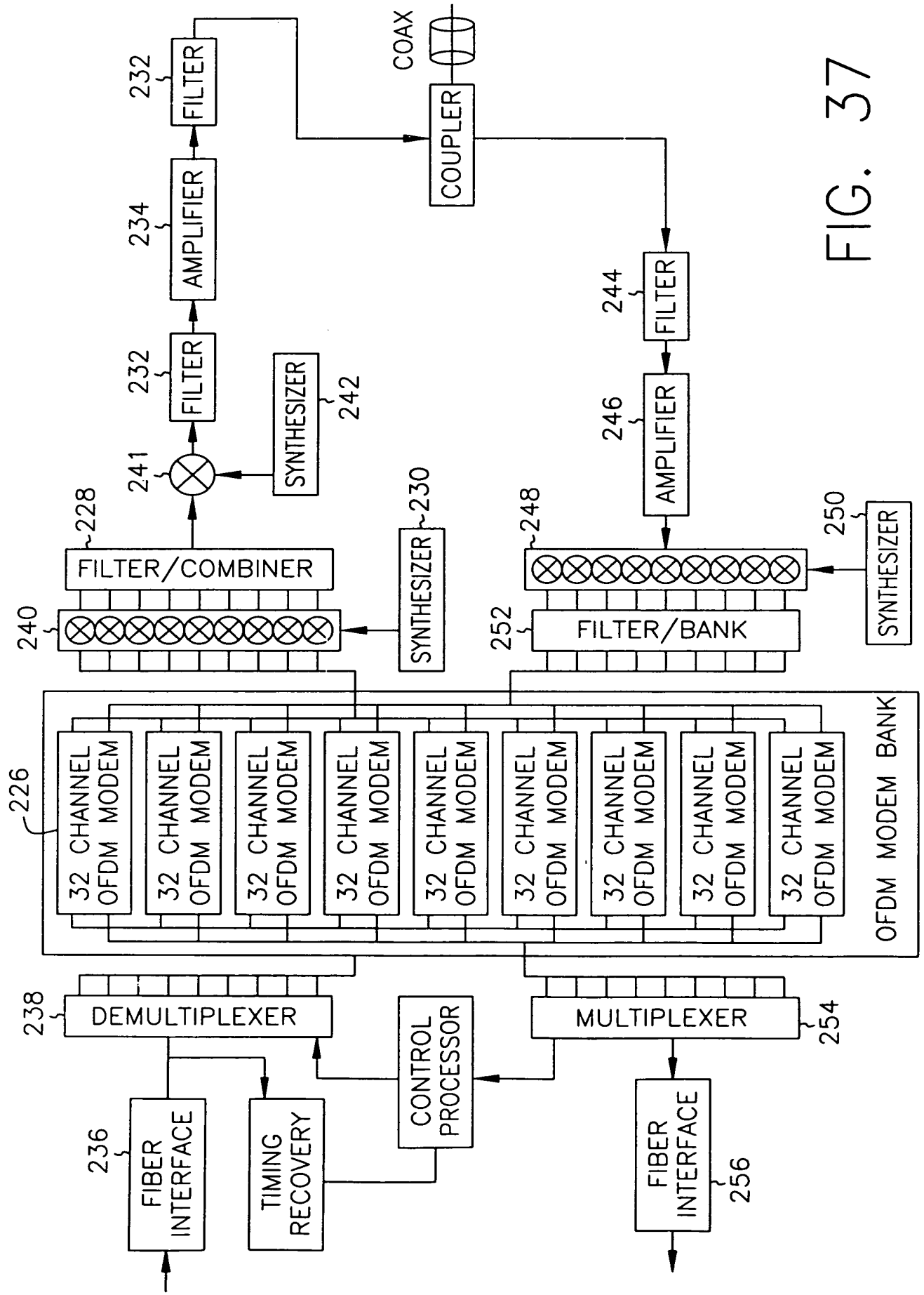


FIG. 37

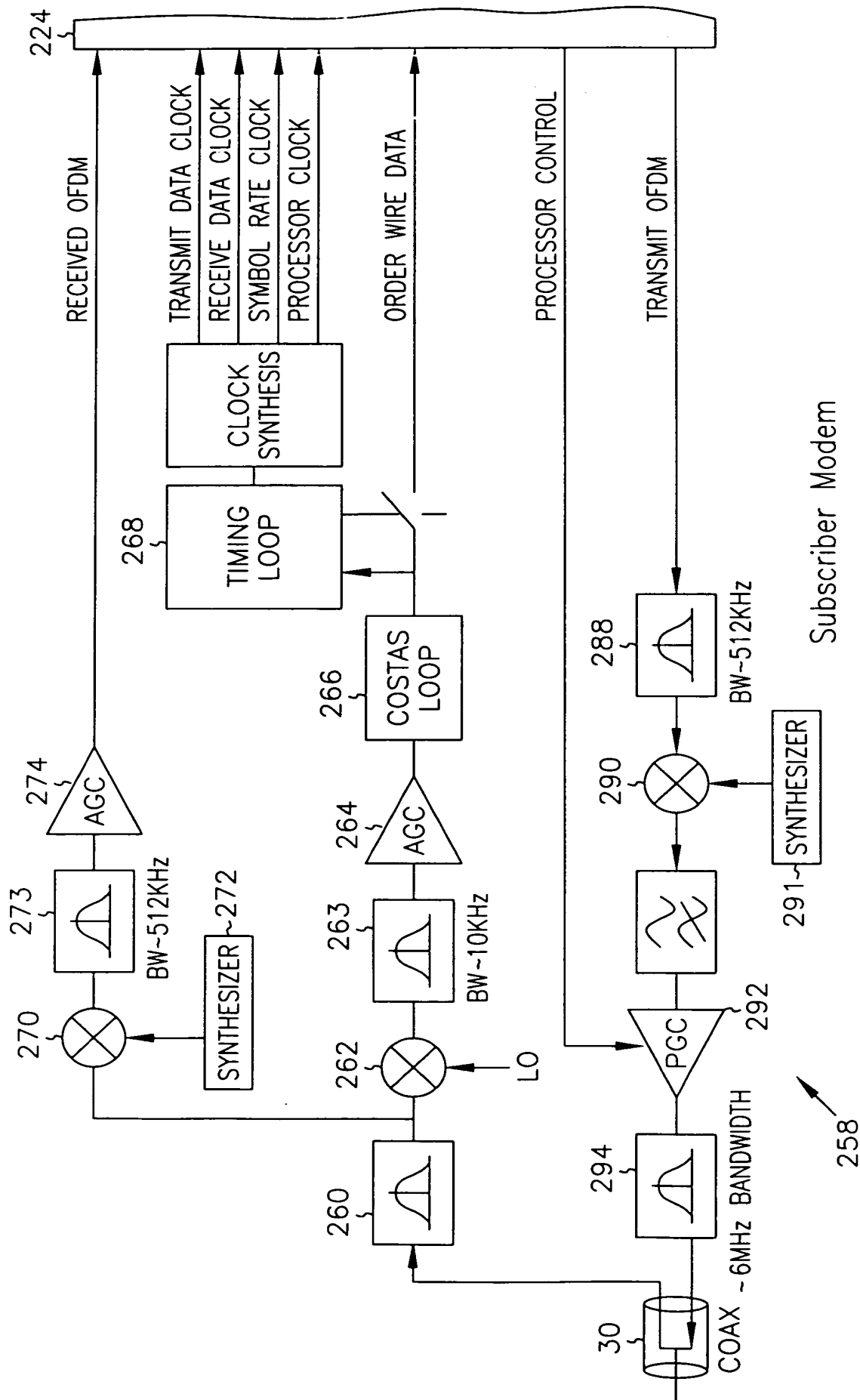


FIG. 38

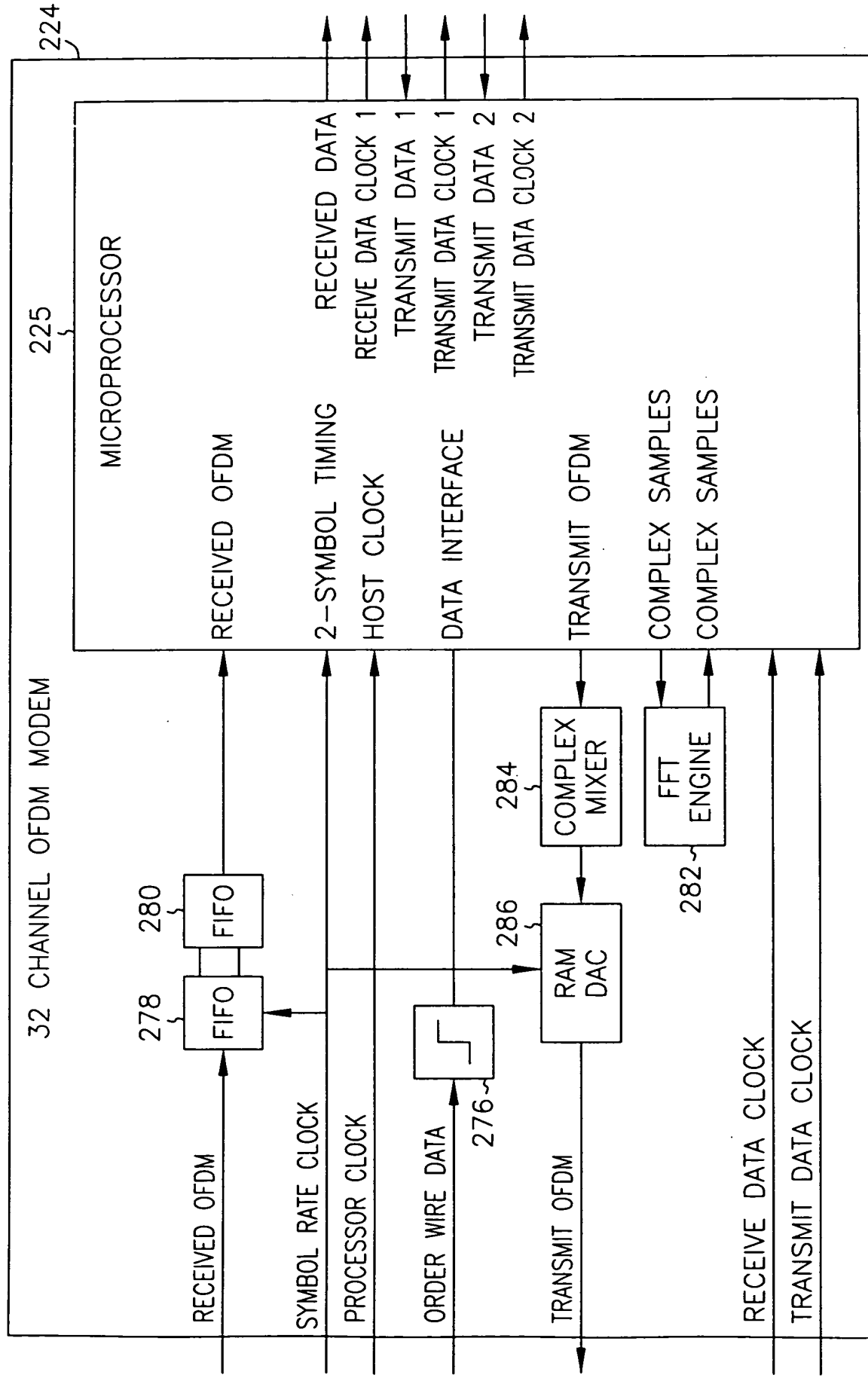


FIG. 39

TOP SECRET

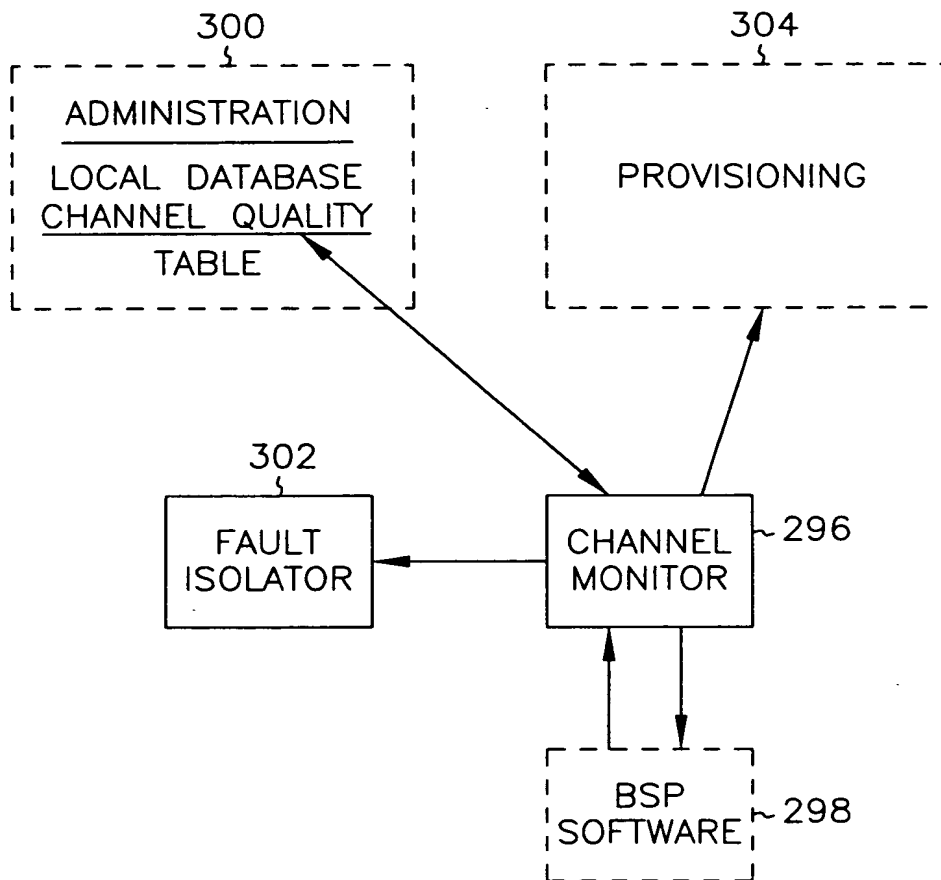


FIG. 40

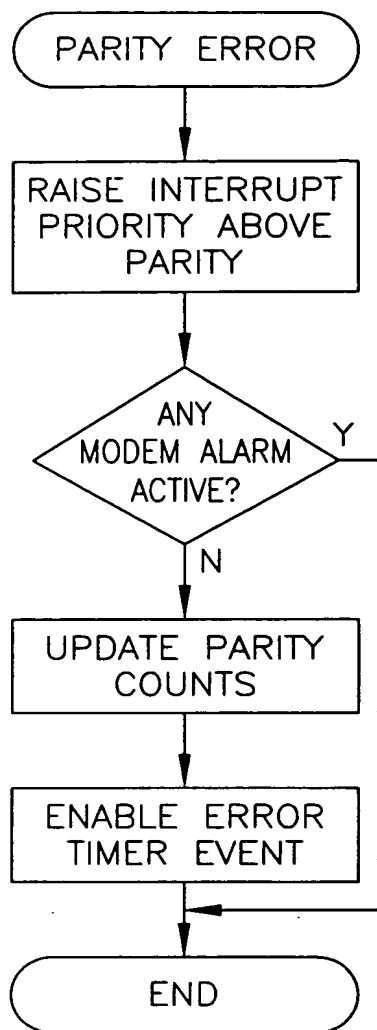


FIG. 41

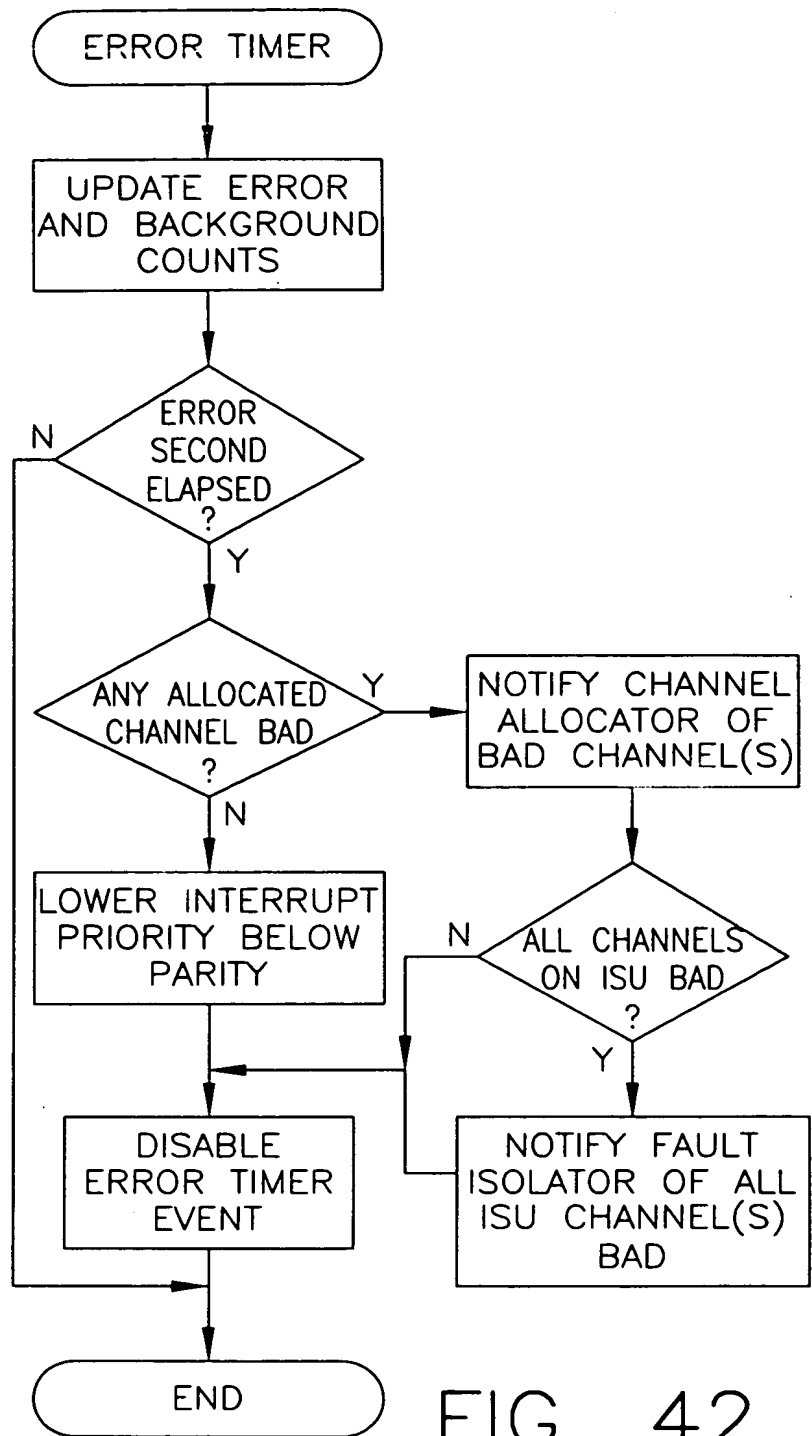


FIG. 42

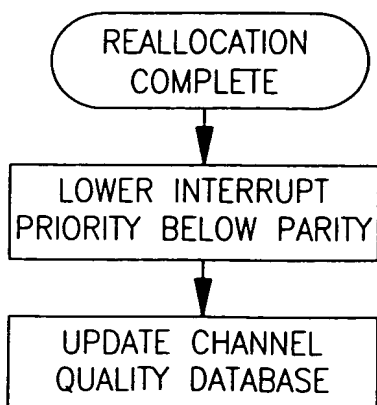
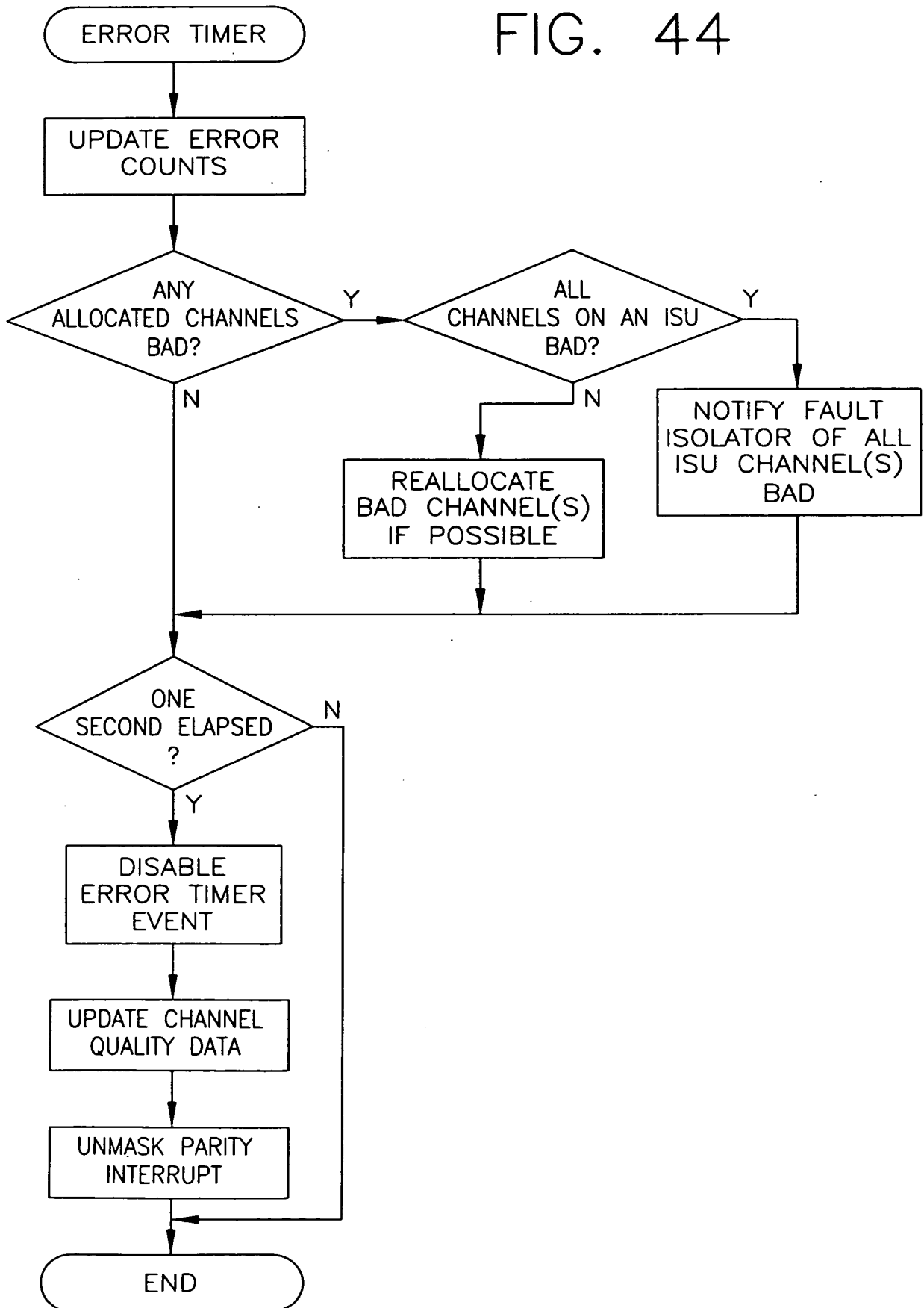


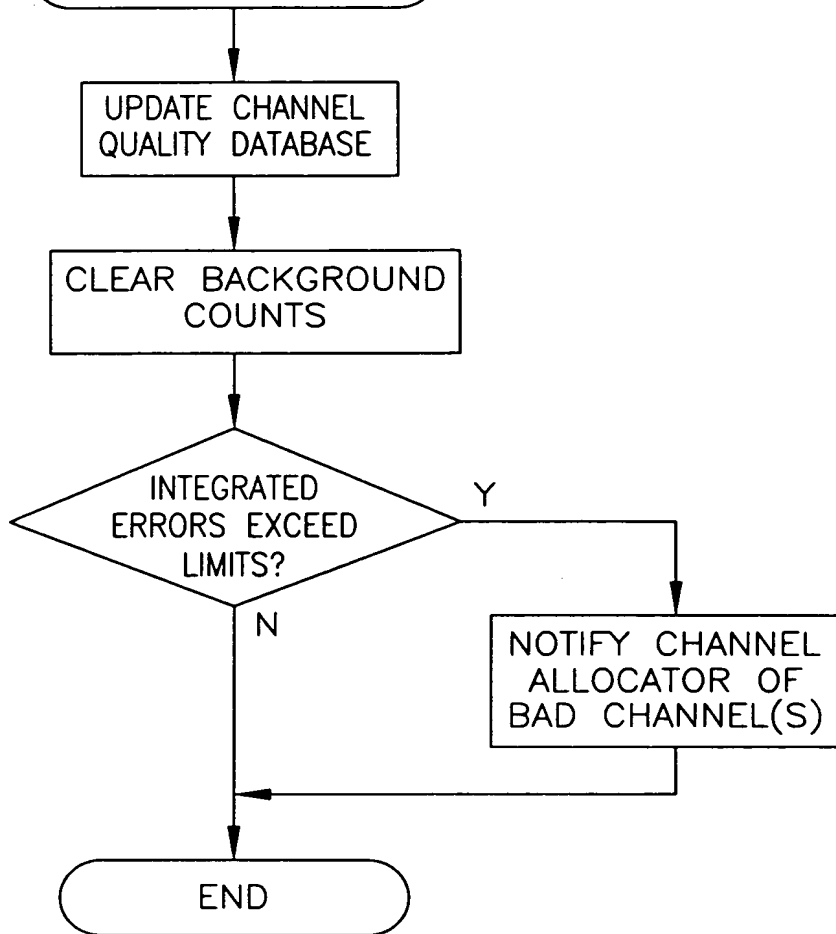
FIG. 43

FIG. 44



BACKGROUND TIMER

FIG. 45



BACKGROUND TIMER

FIG. 46

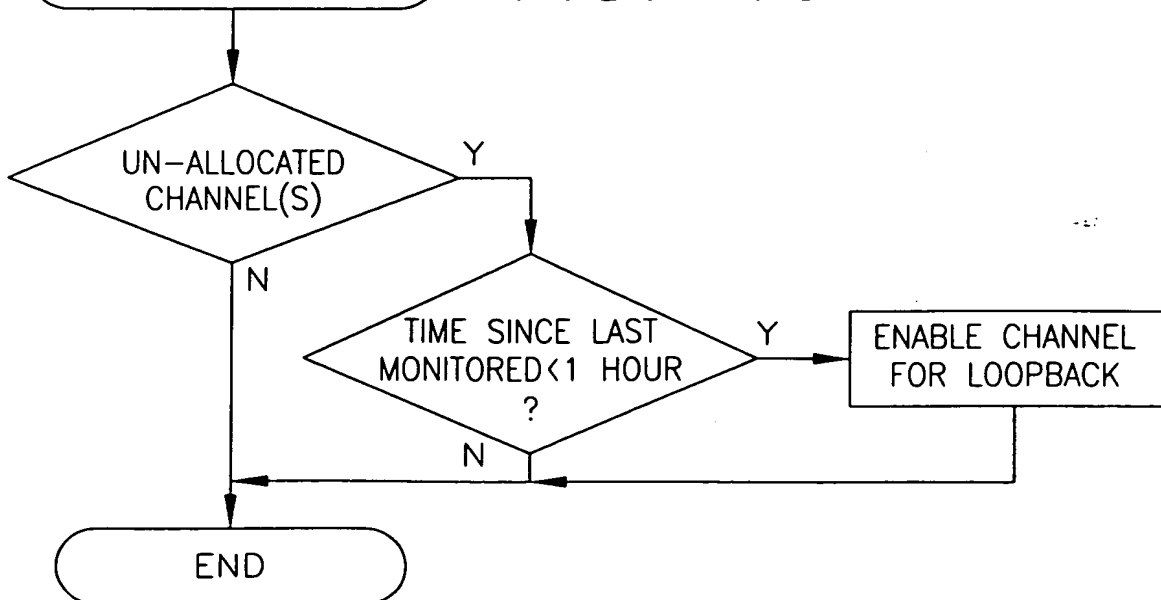


FIG. 47

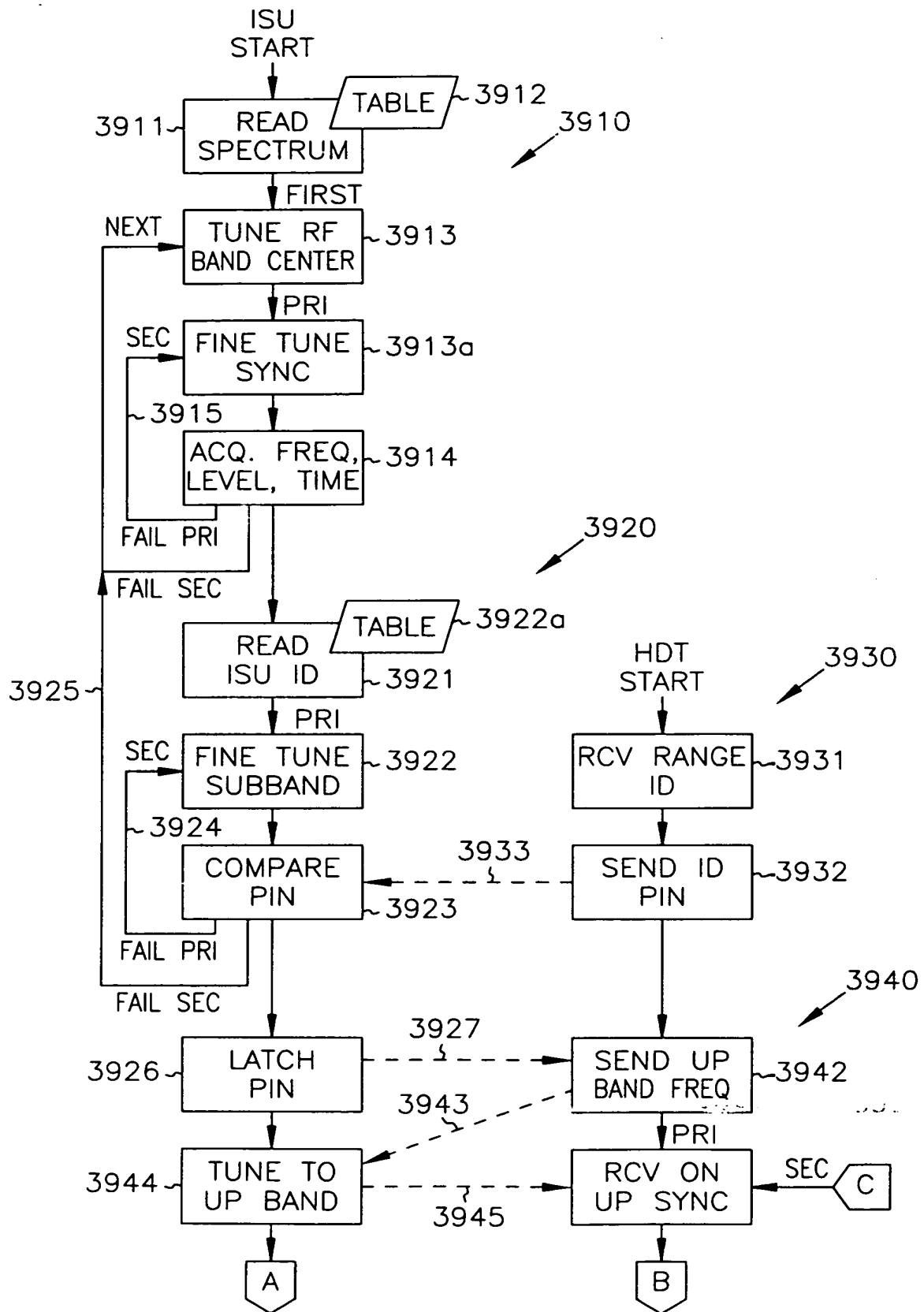


FIG. 47

[illegible]

FIG. 48

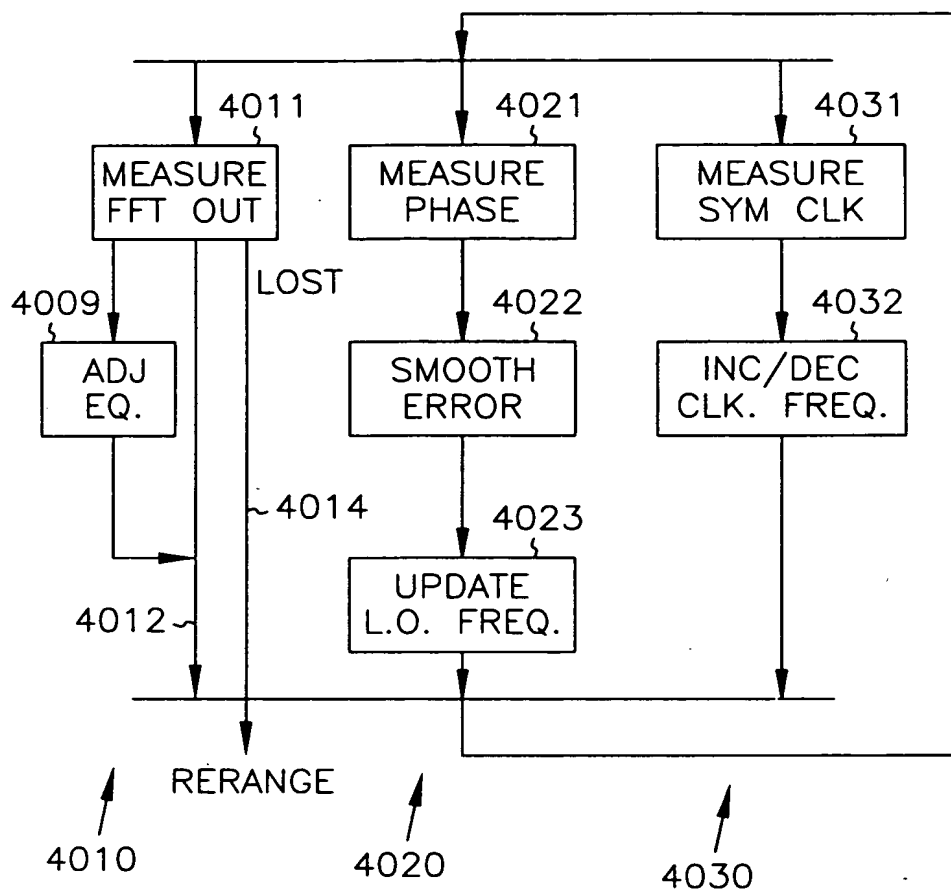


FIG. 49

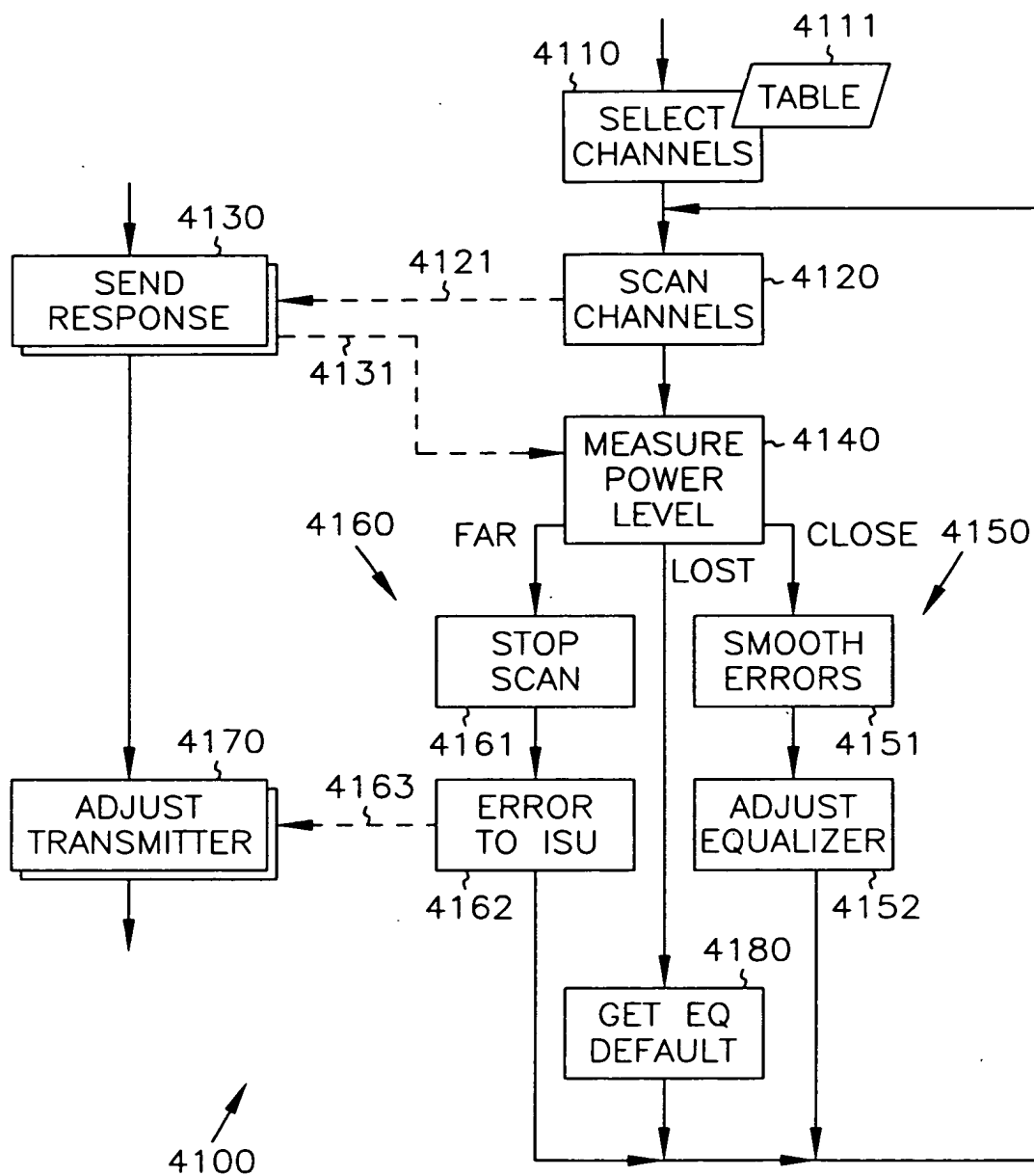


FIG. 50

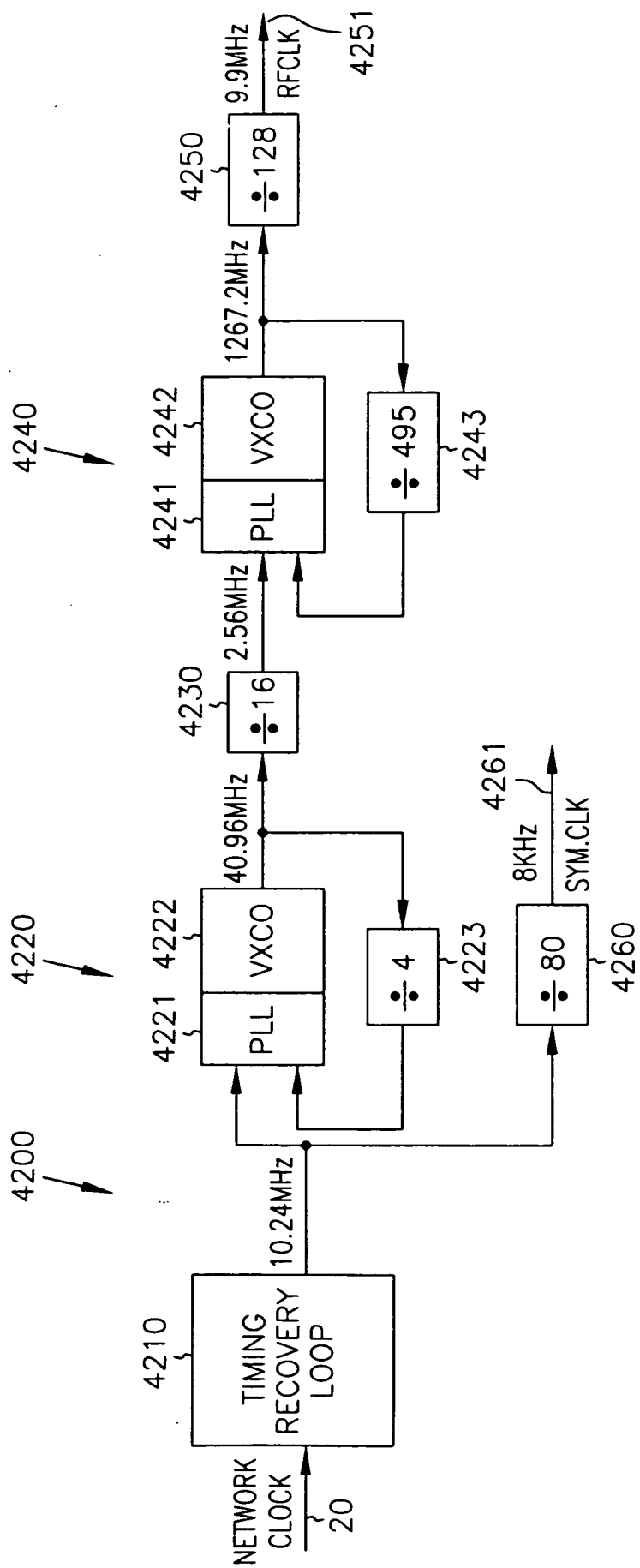


FIG. 51

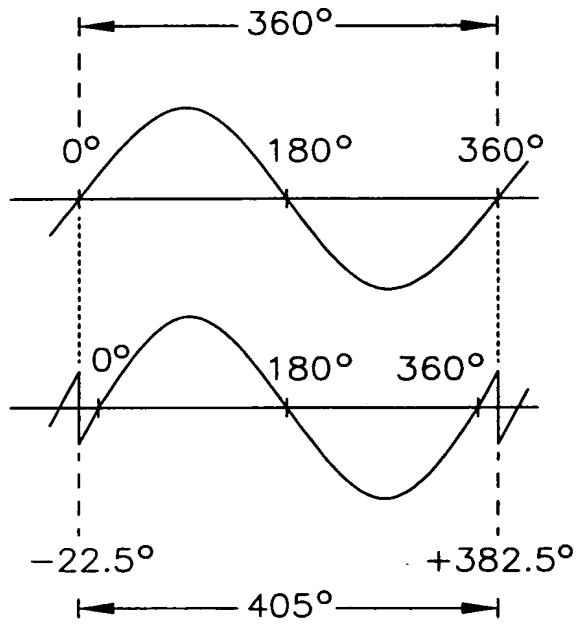


FIG. 52

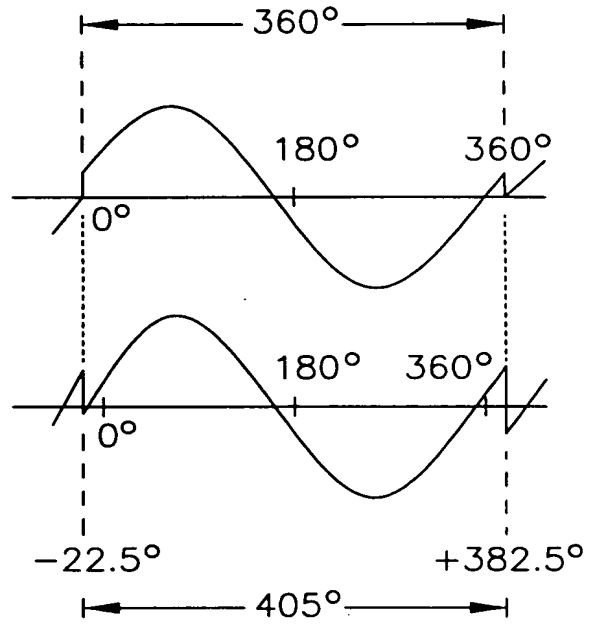


FIG. 53

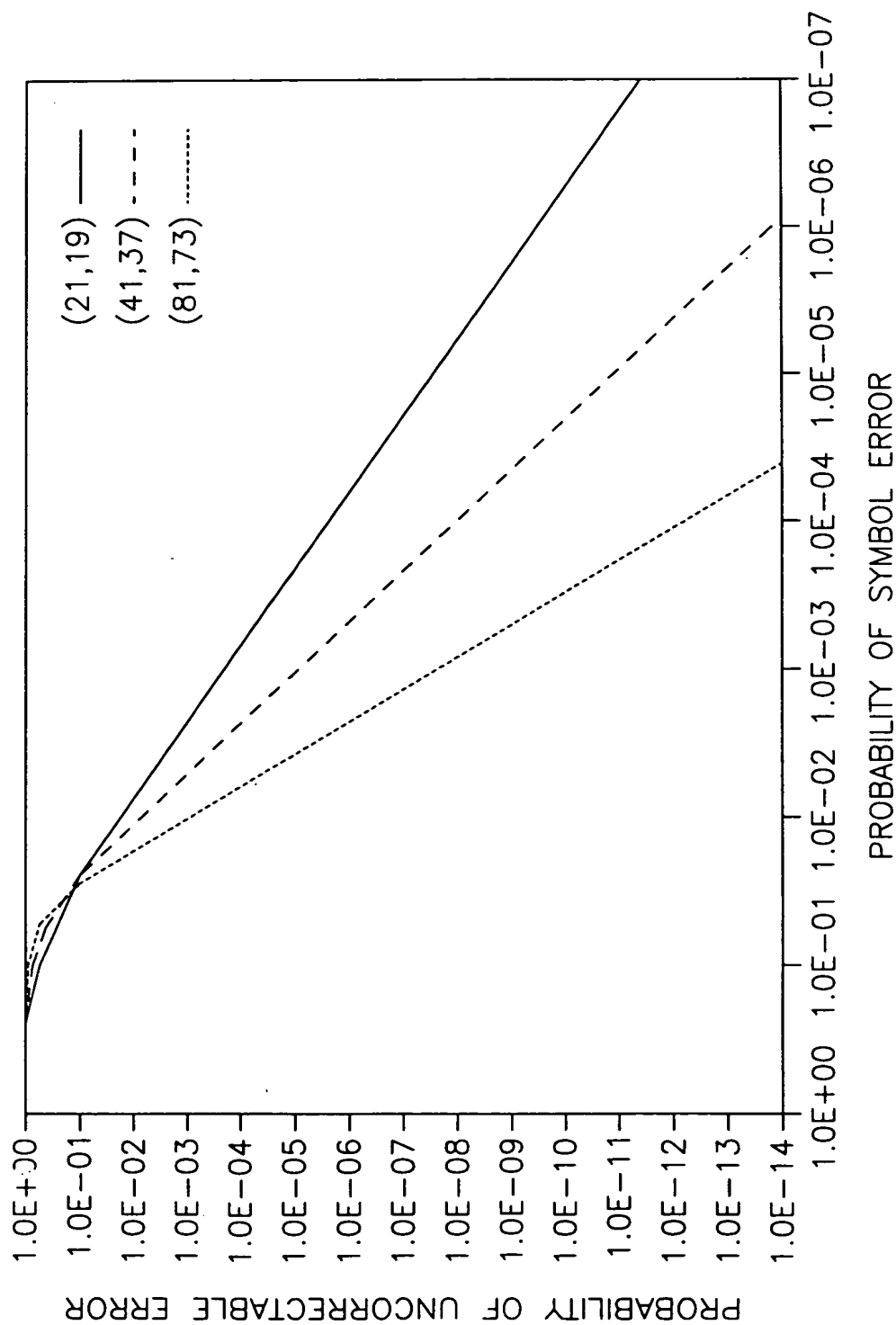


FIG. 54

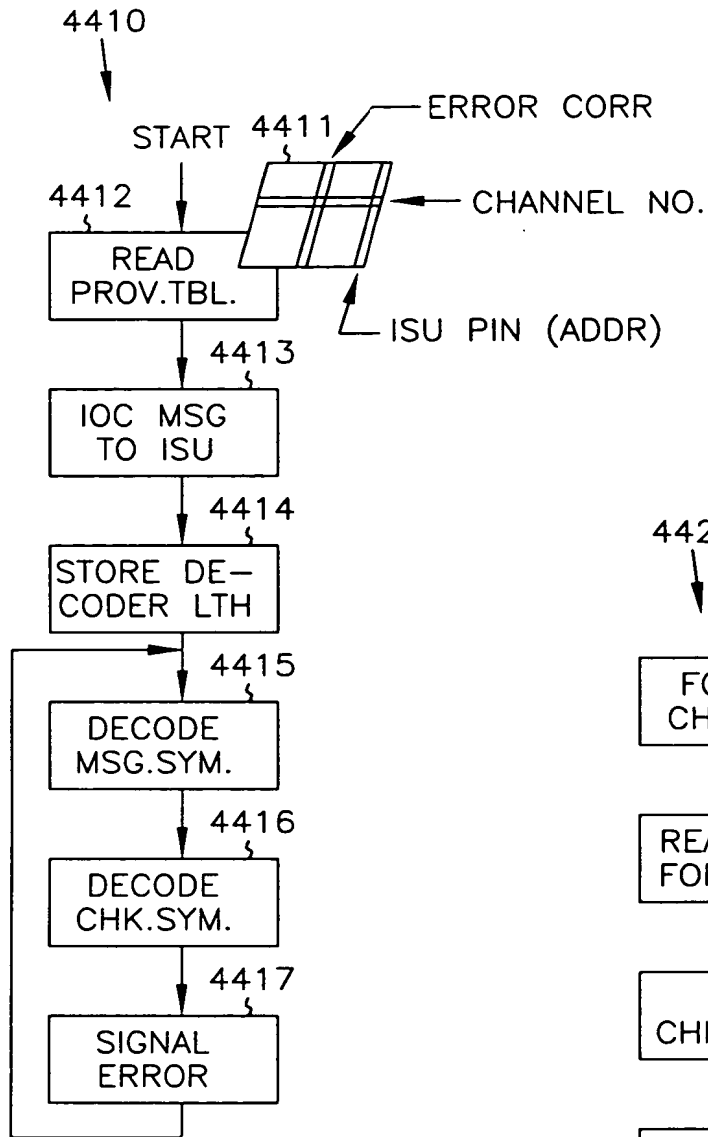


FIG. 55

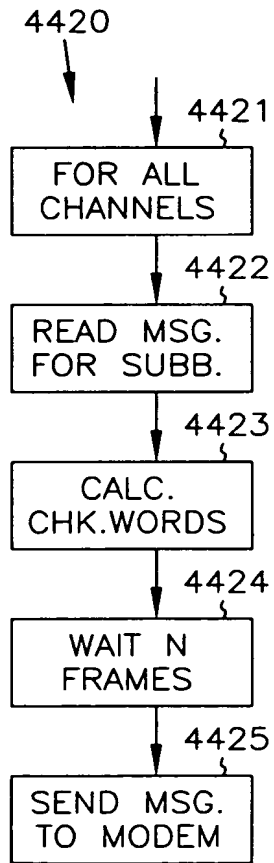


FIG. 56

FIG. 57

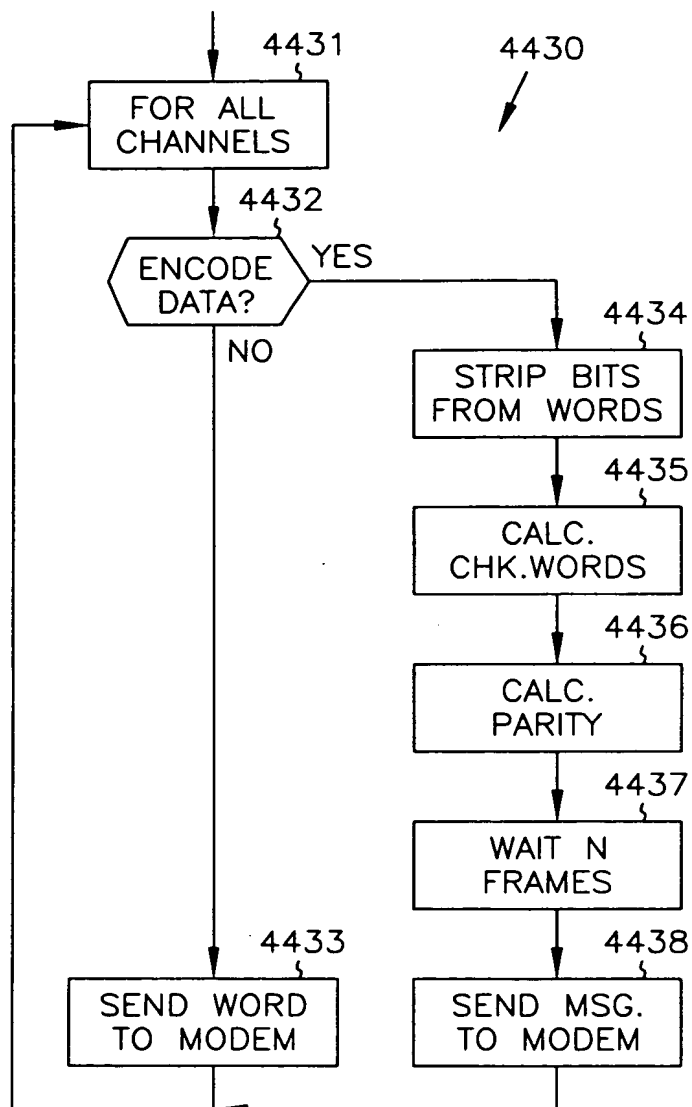


FIG. 57

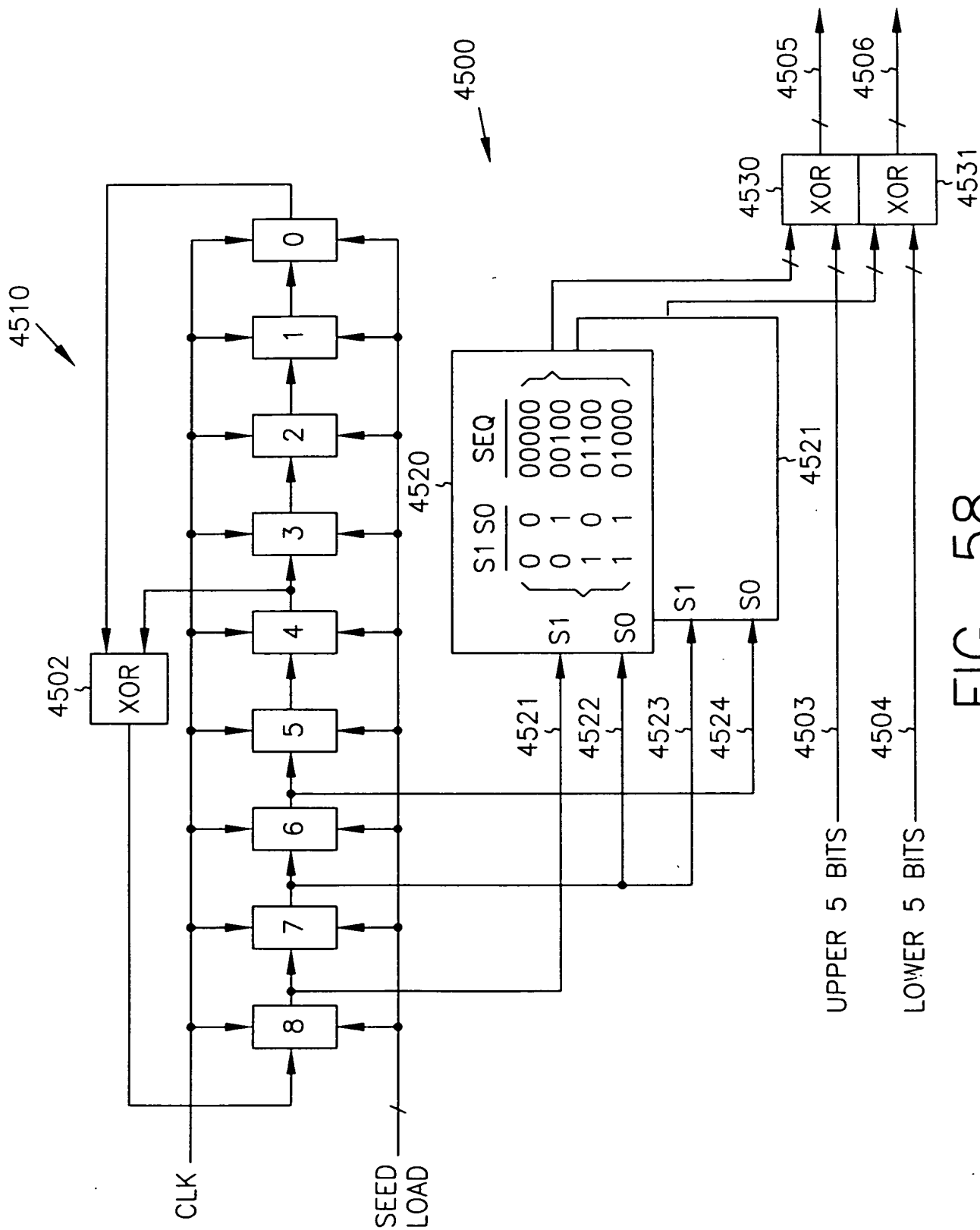


FIG. 58

TOP SECRET

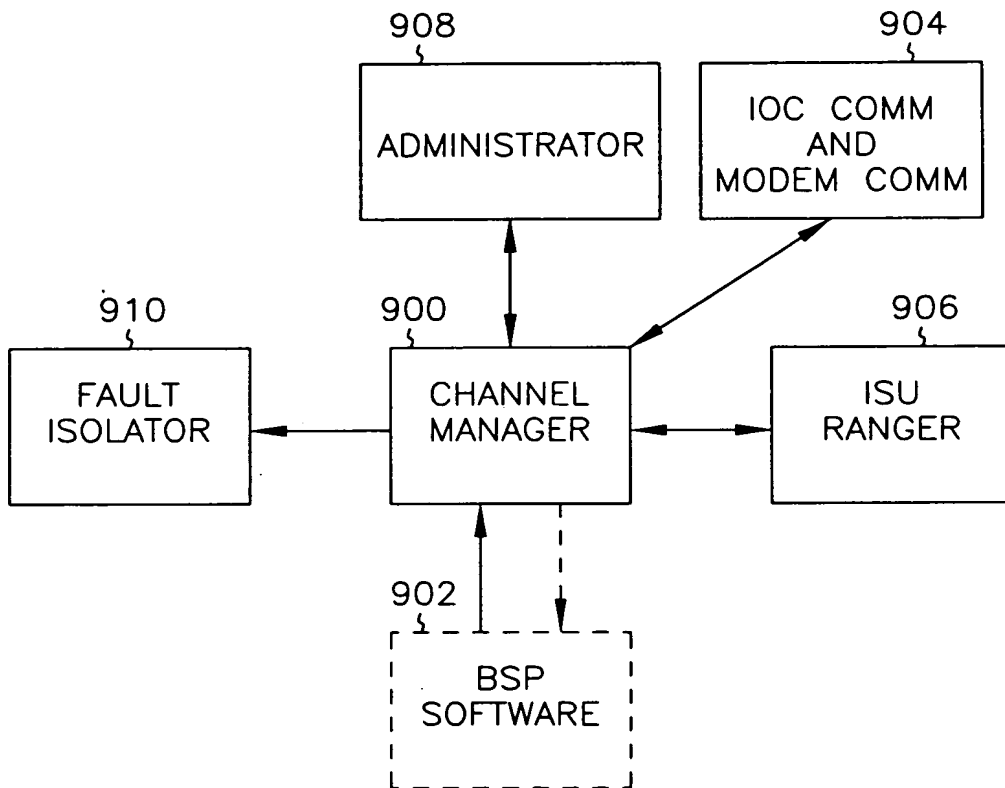


FIG. 59

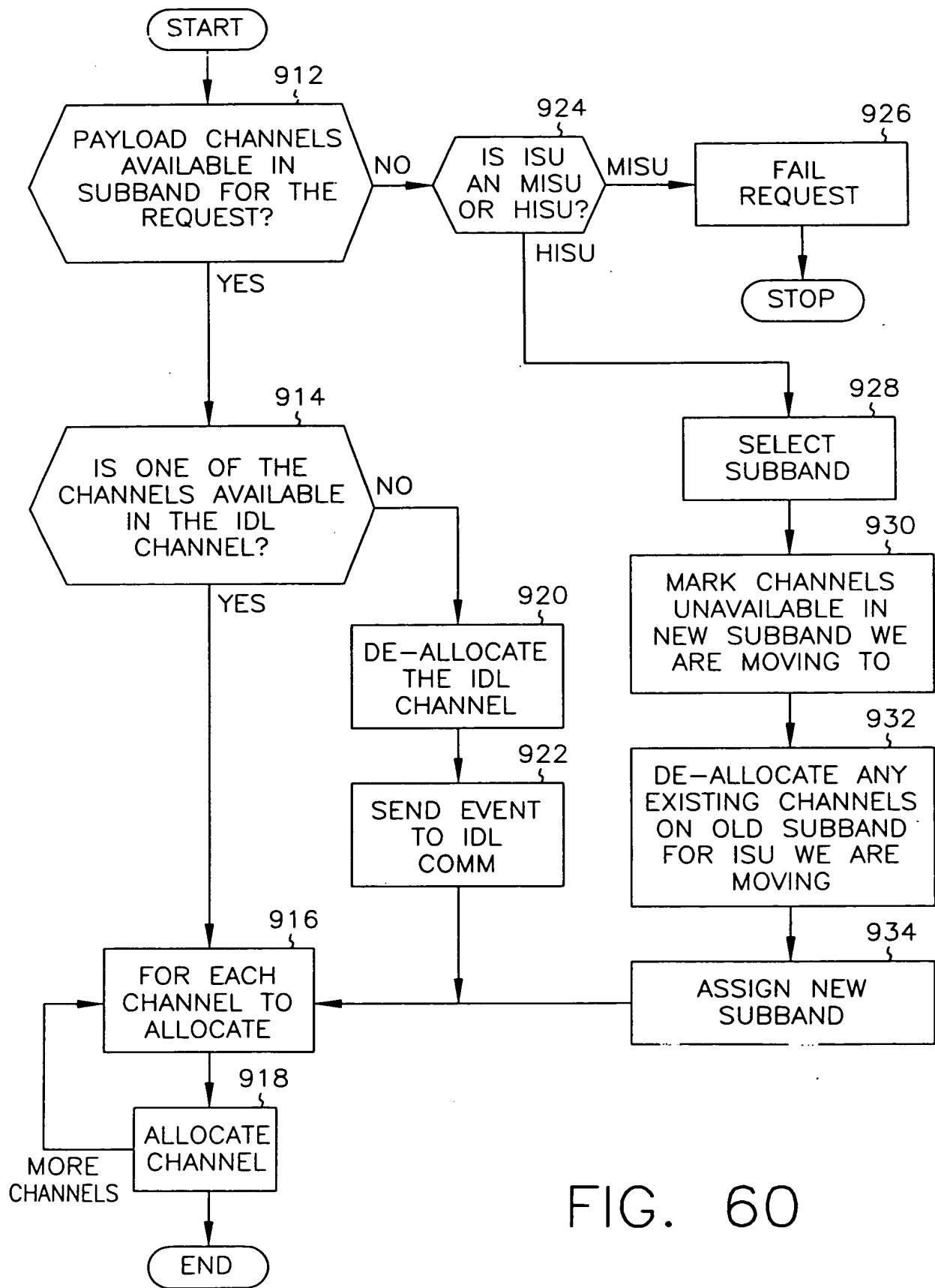


FIG. 60

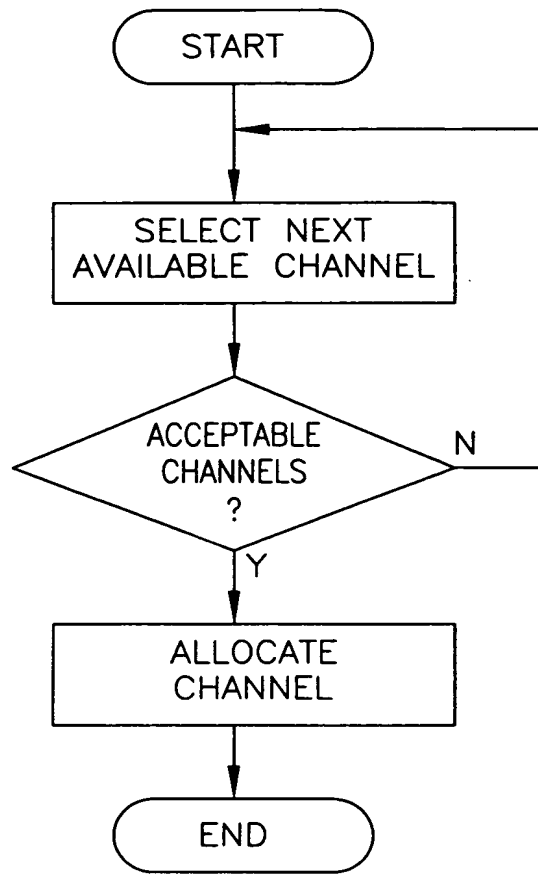


FIG. 61

```

graph TD
    START([START]) --> SELECT[SELECT SUBBAND]
    SELECT --> DEC1{ACCEPTABLE  
LOAD ON IOC  
?}
    DEC1 -- N --> J1(( ))
    DEC1 -- Y --> DEC2{PAYLOAD  
CHANNELS  
AVAIL?}
    DEC2 -- N --> J1
    DEC2 -- Y --> DEC3{ACCEPTABLE  
QUALITY  
?}
    DEC3 -- N --> J1
    DEC3 -- Y --> ASSIGN[ASSIGN SUBBAND]
    ASSIGN --> END([END])
    J1 --> SELECT

```

FIG. 62

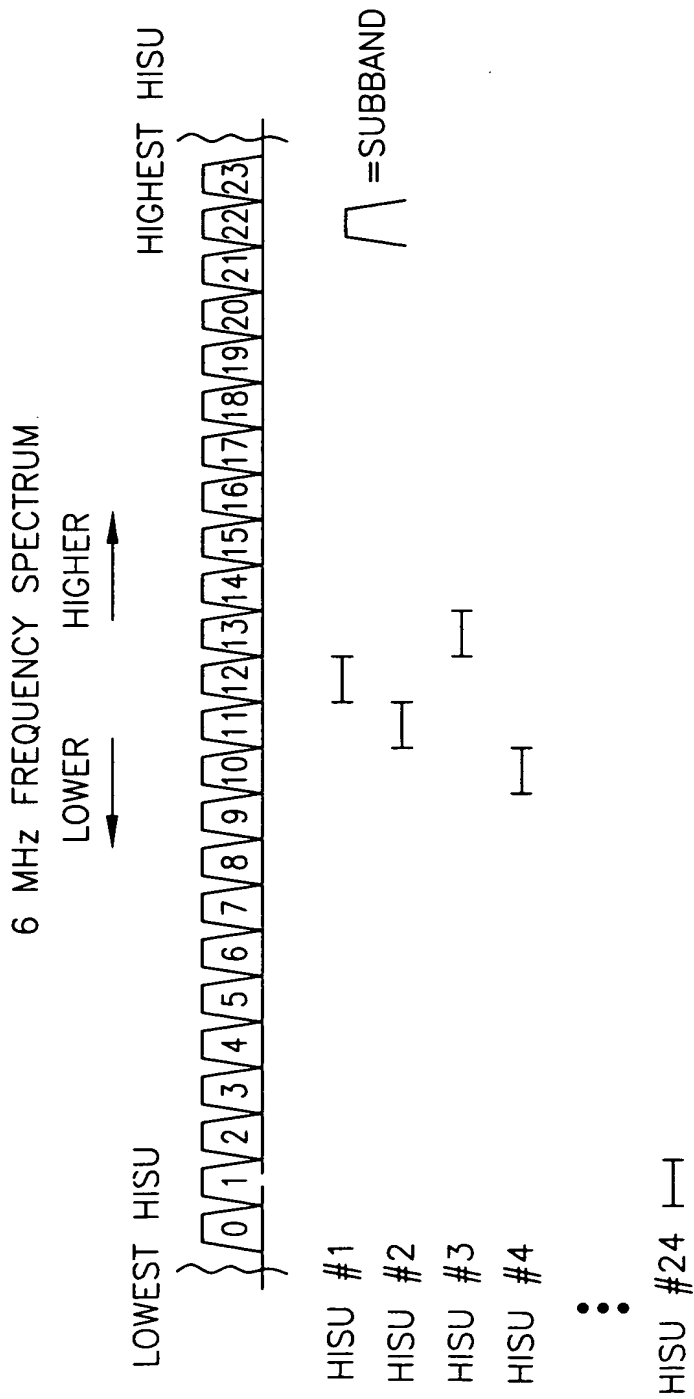


FIG. 63

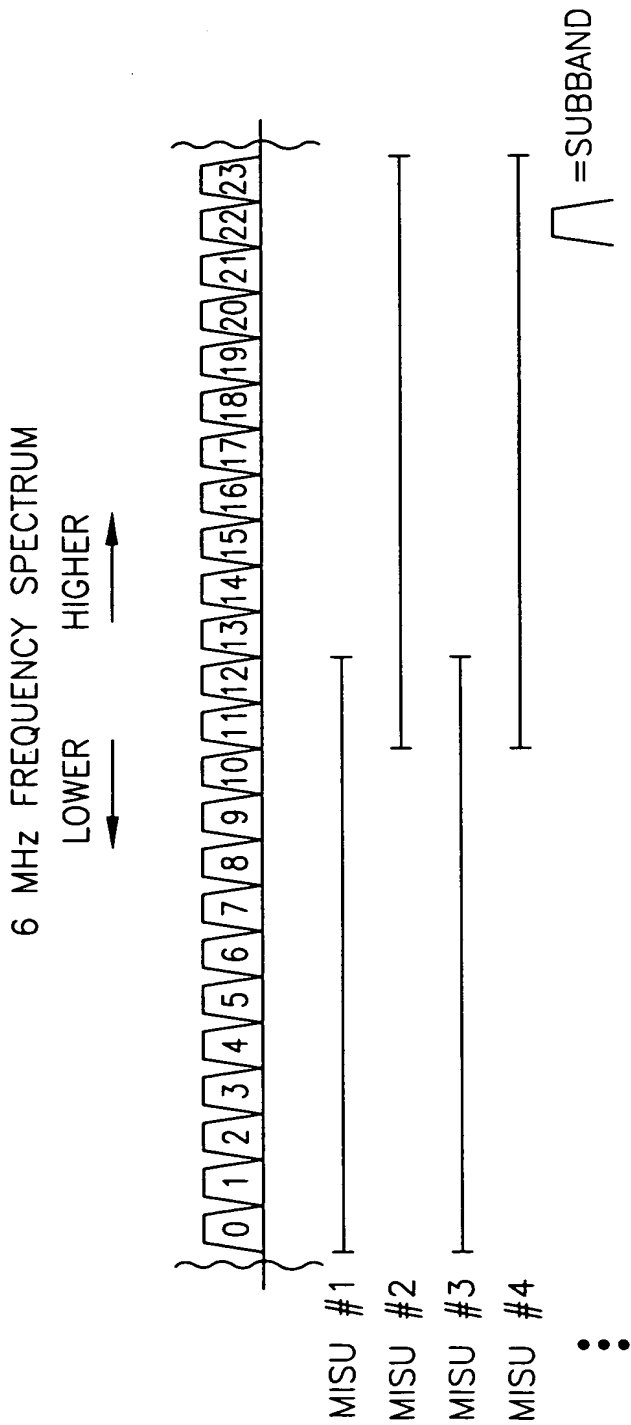


FIG. 64

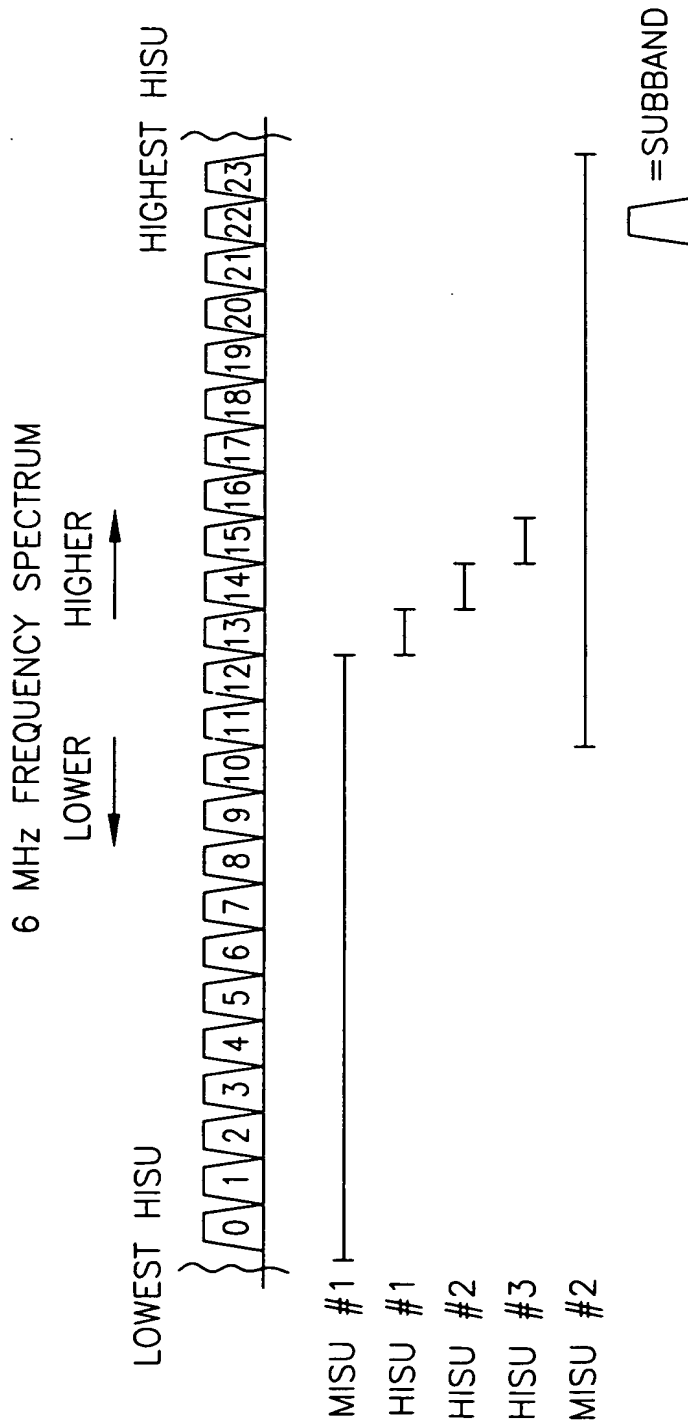


FIG. 65

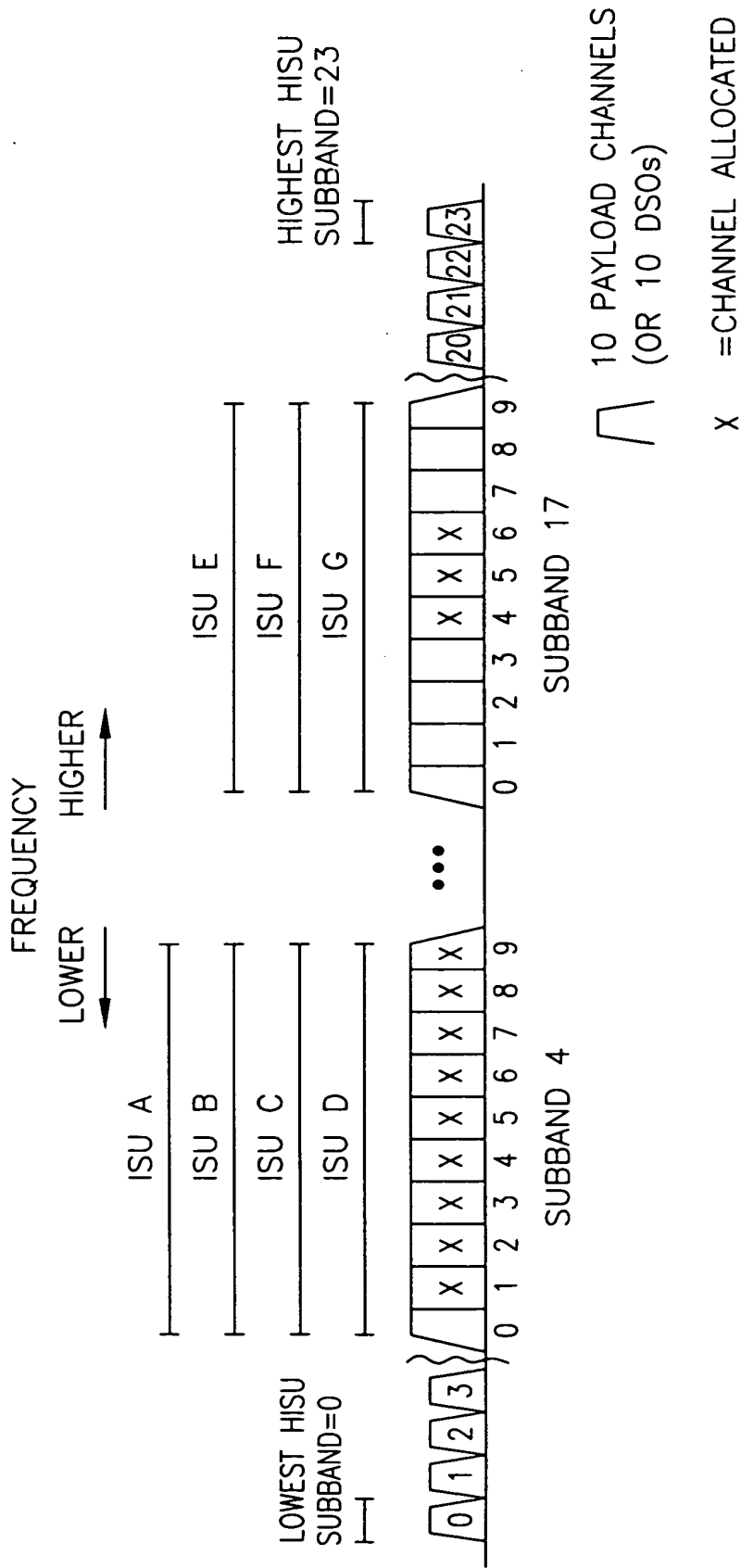


FIG. 66

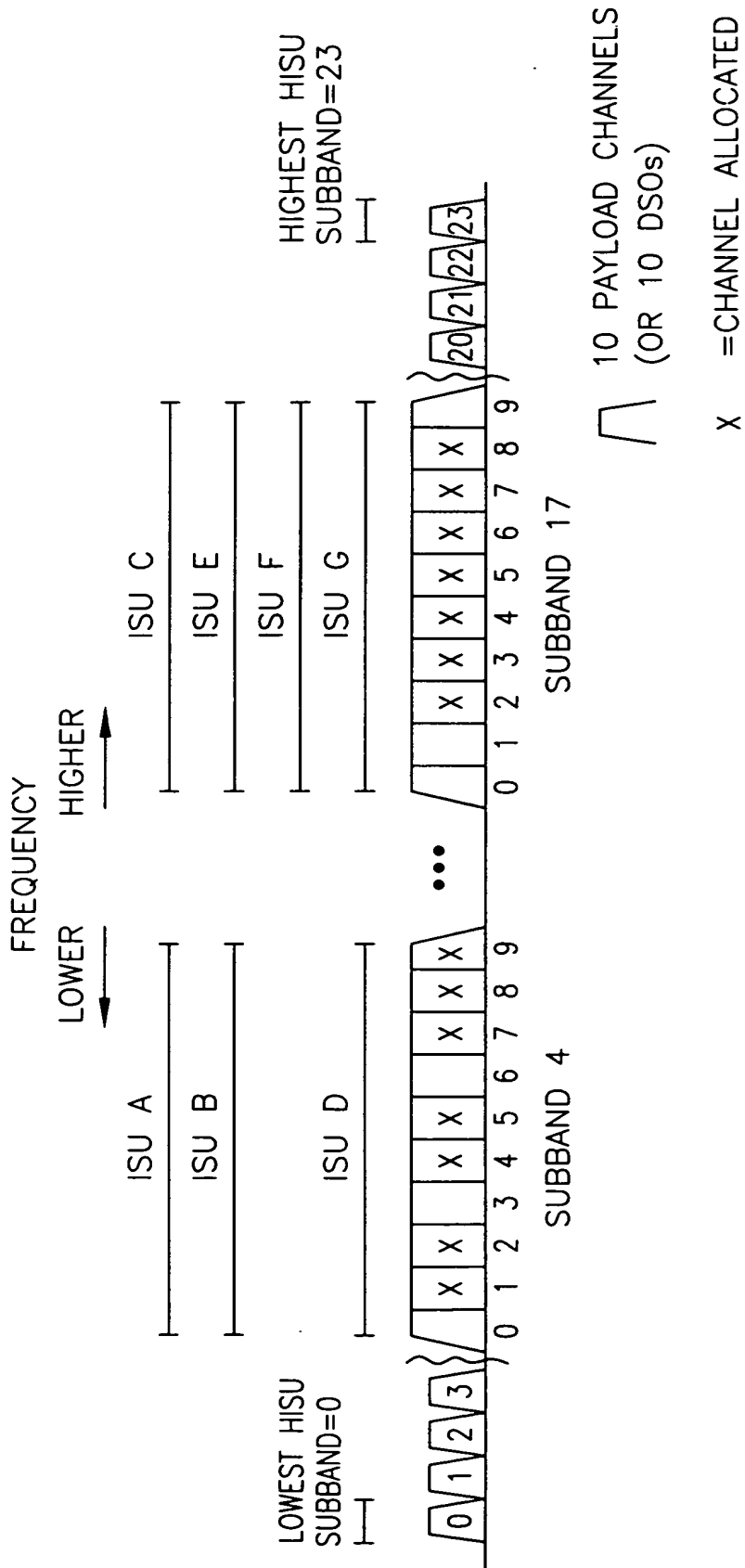


FIG. 67

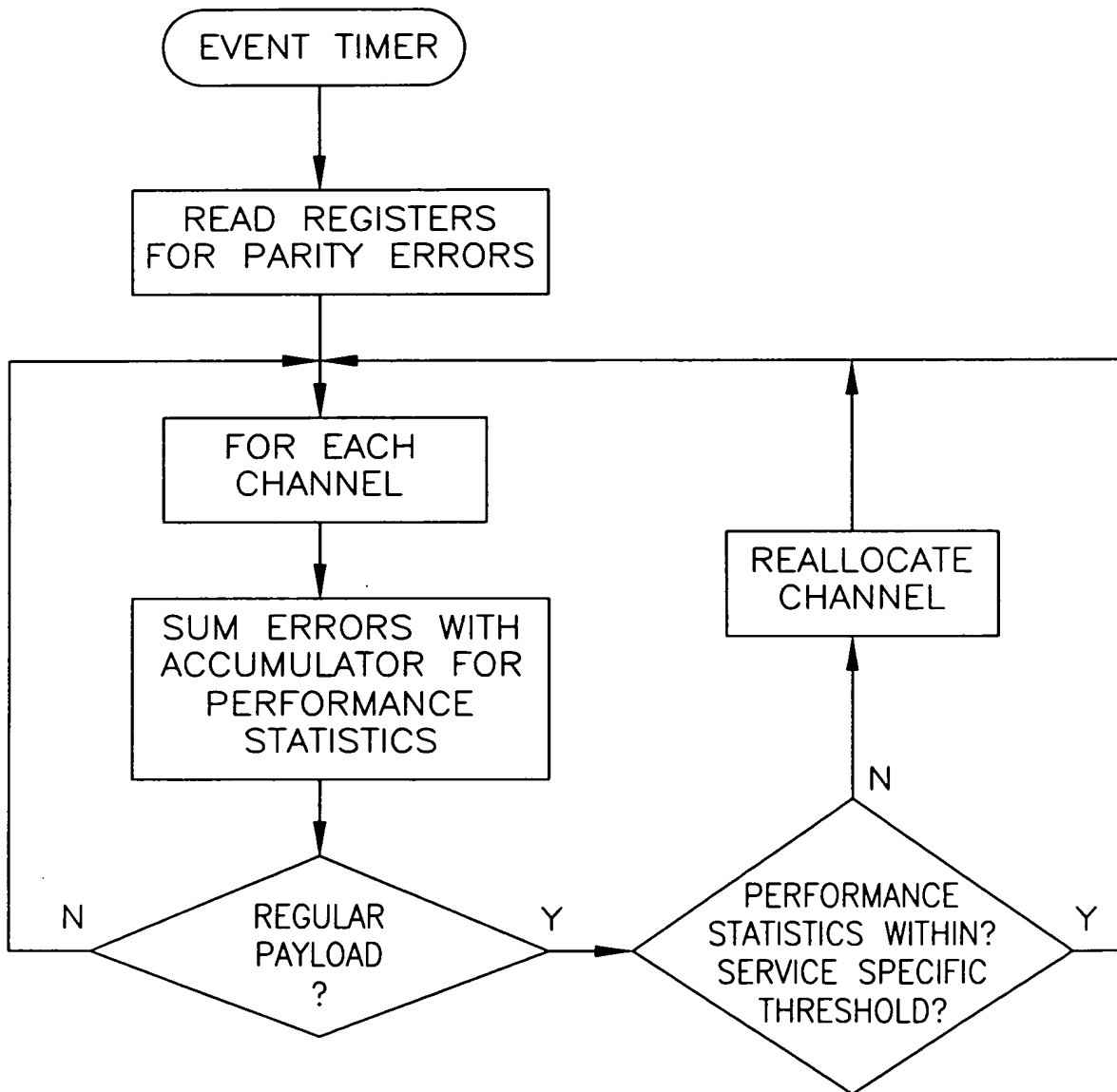


FIG. 68

TOP SECRET

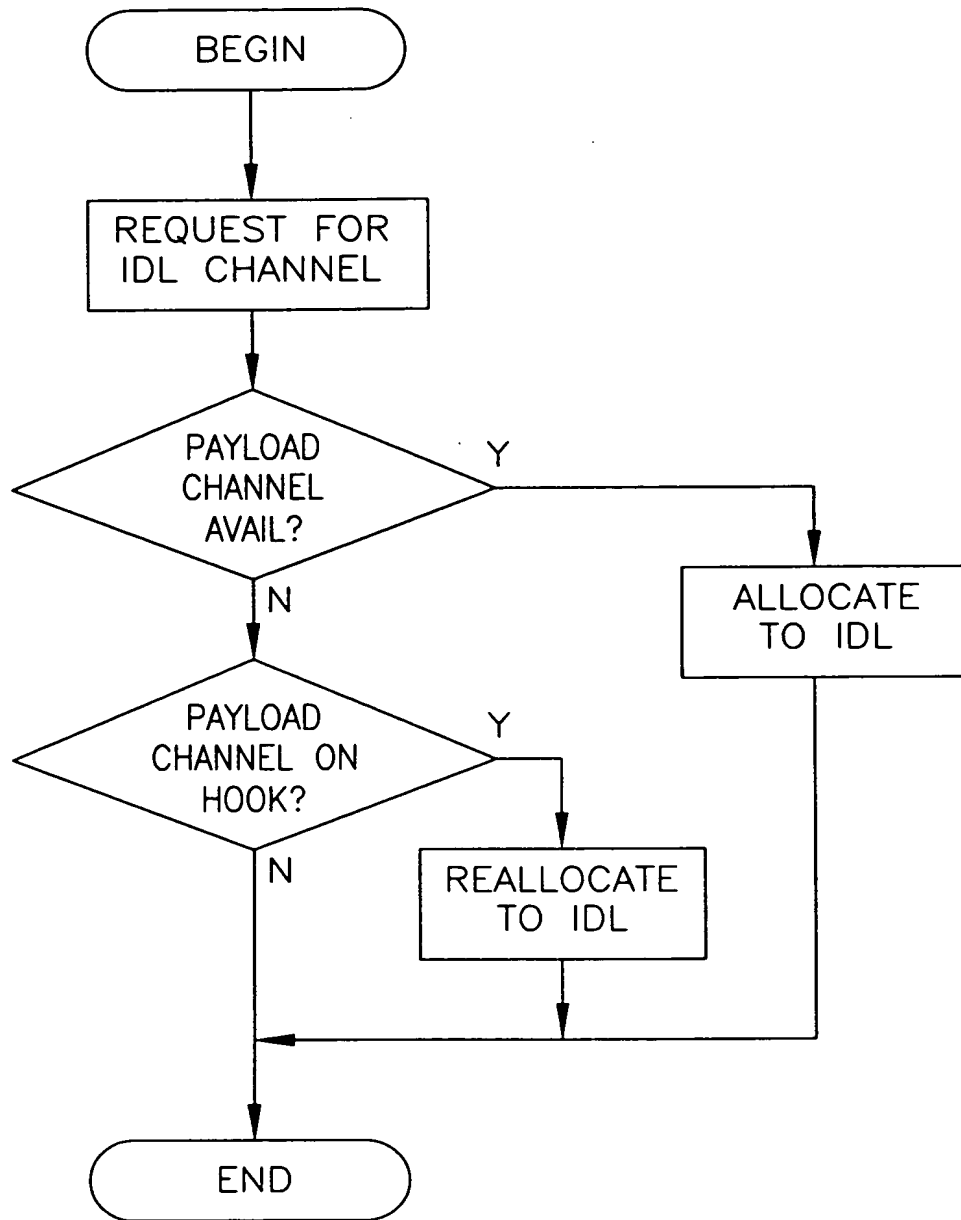


FIG. 69

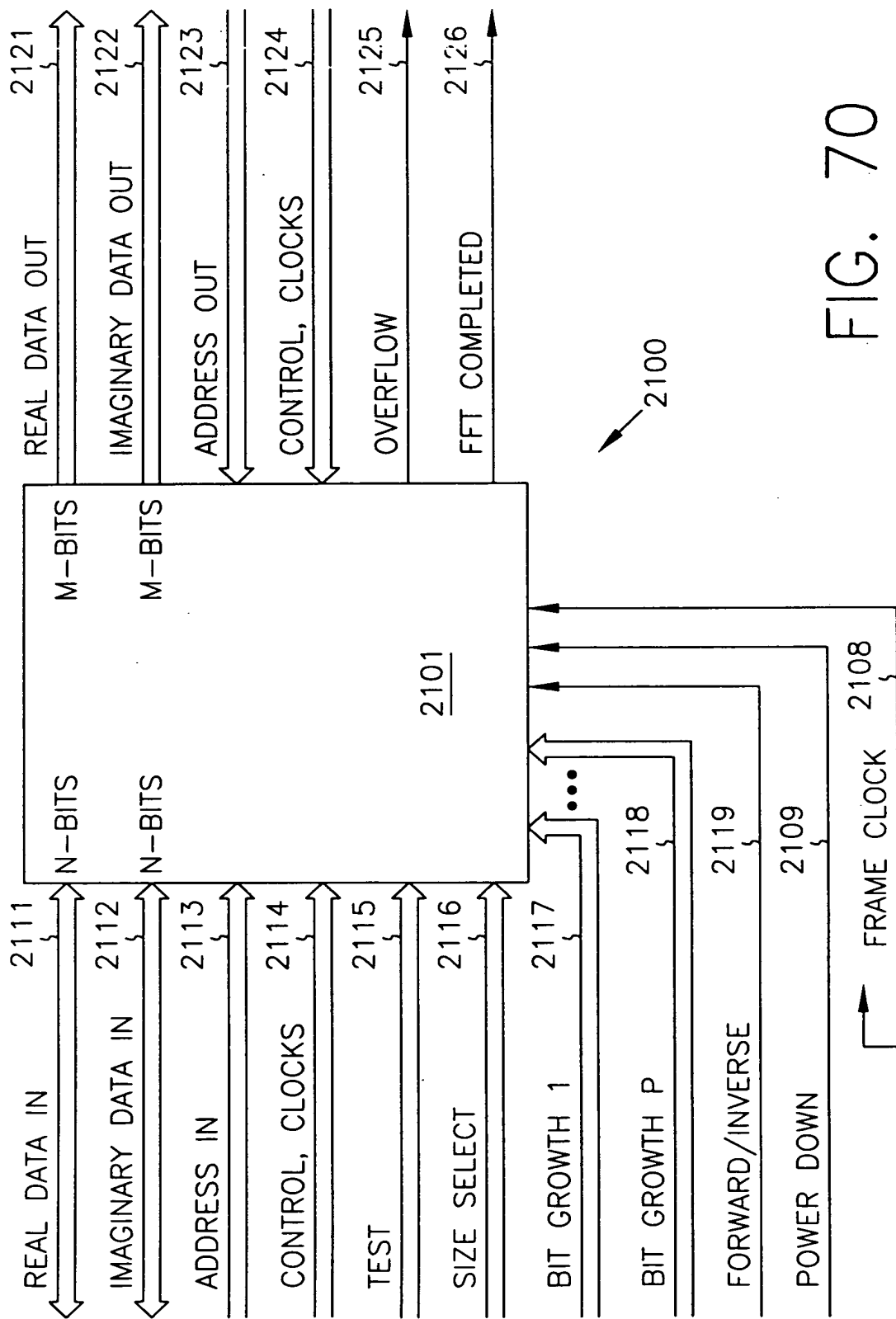


FIG. 70

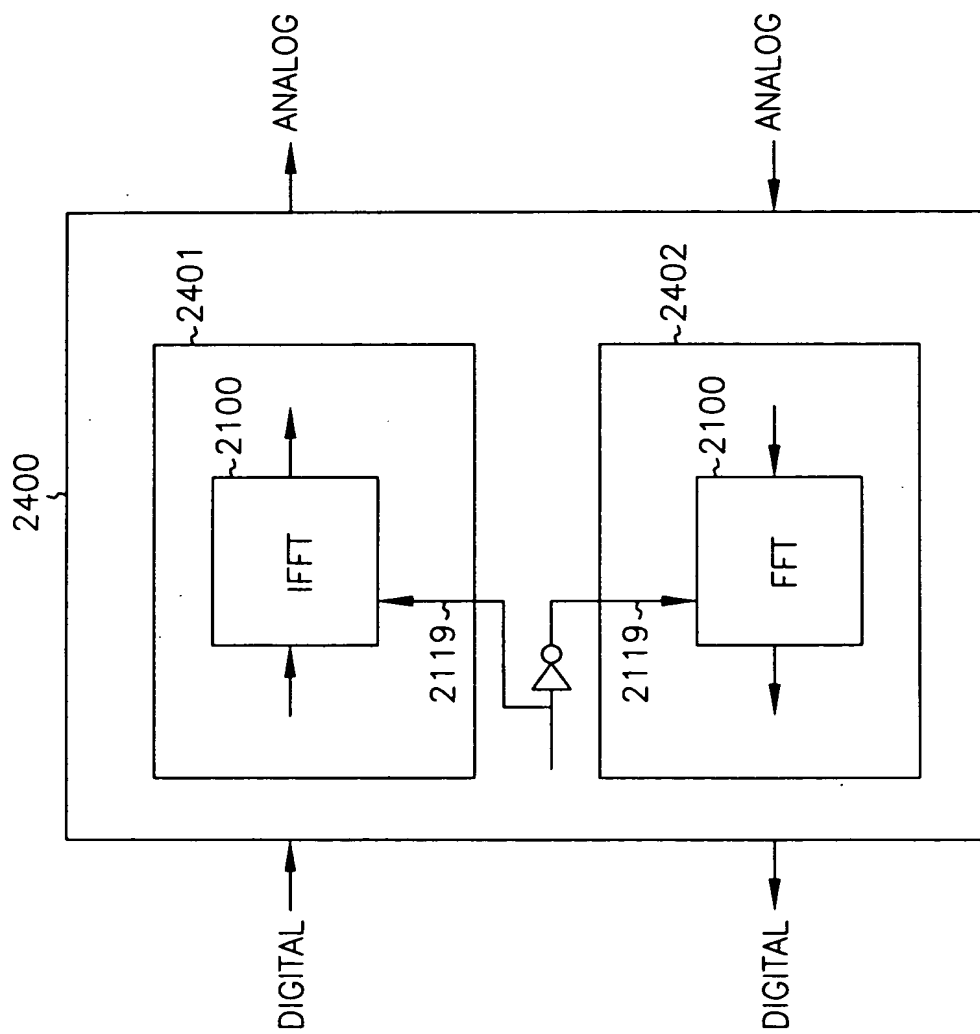


FIG. 71

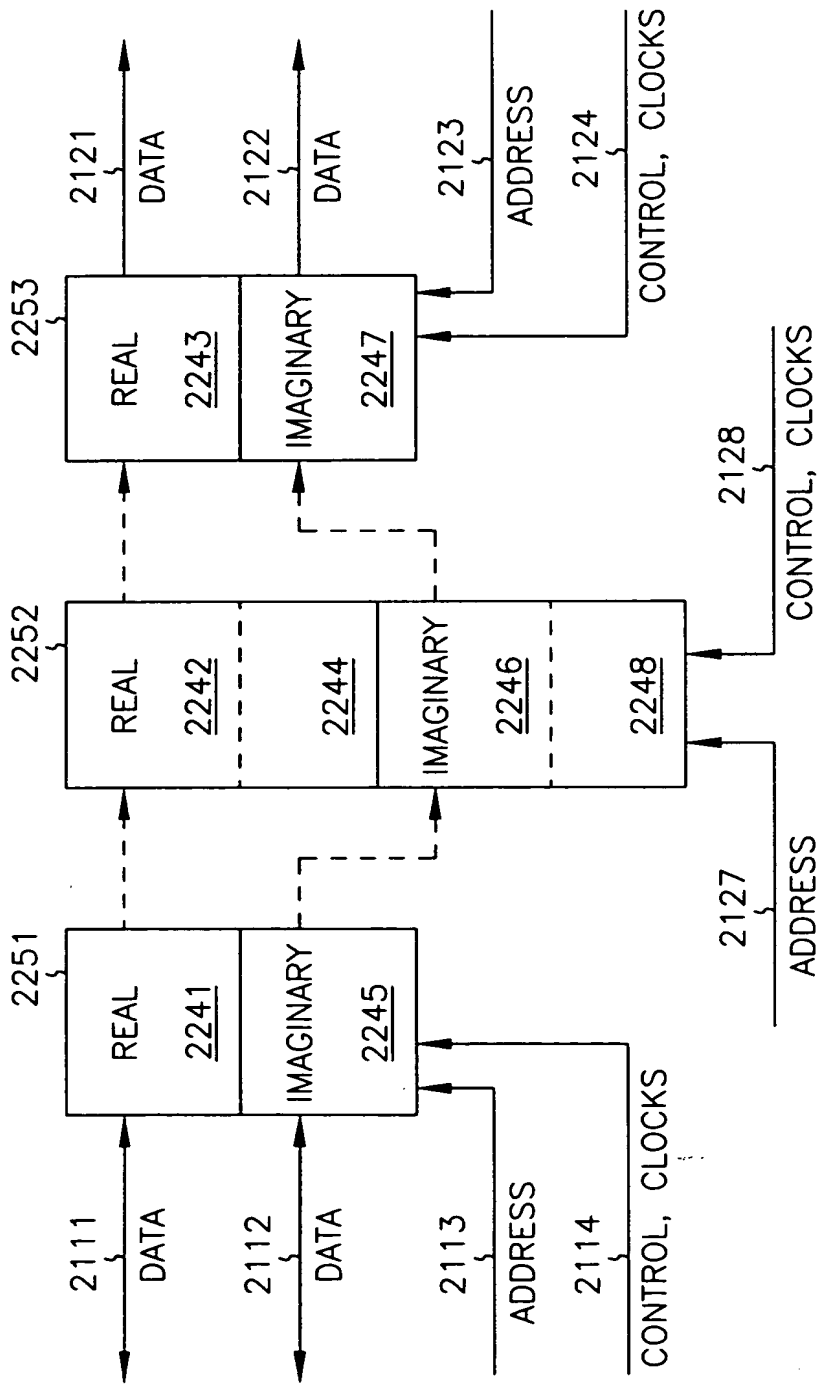


FIG. 72

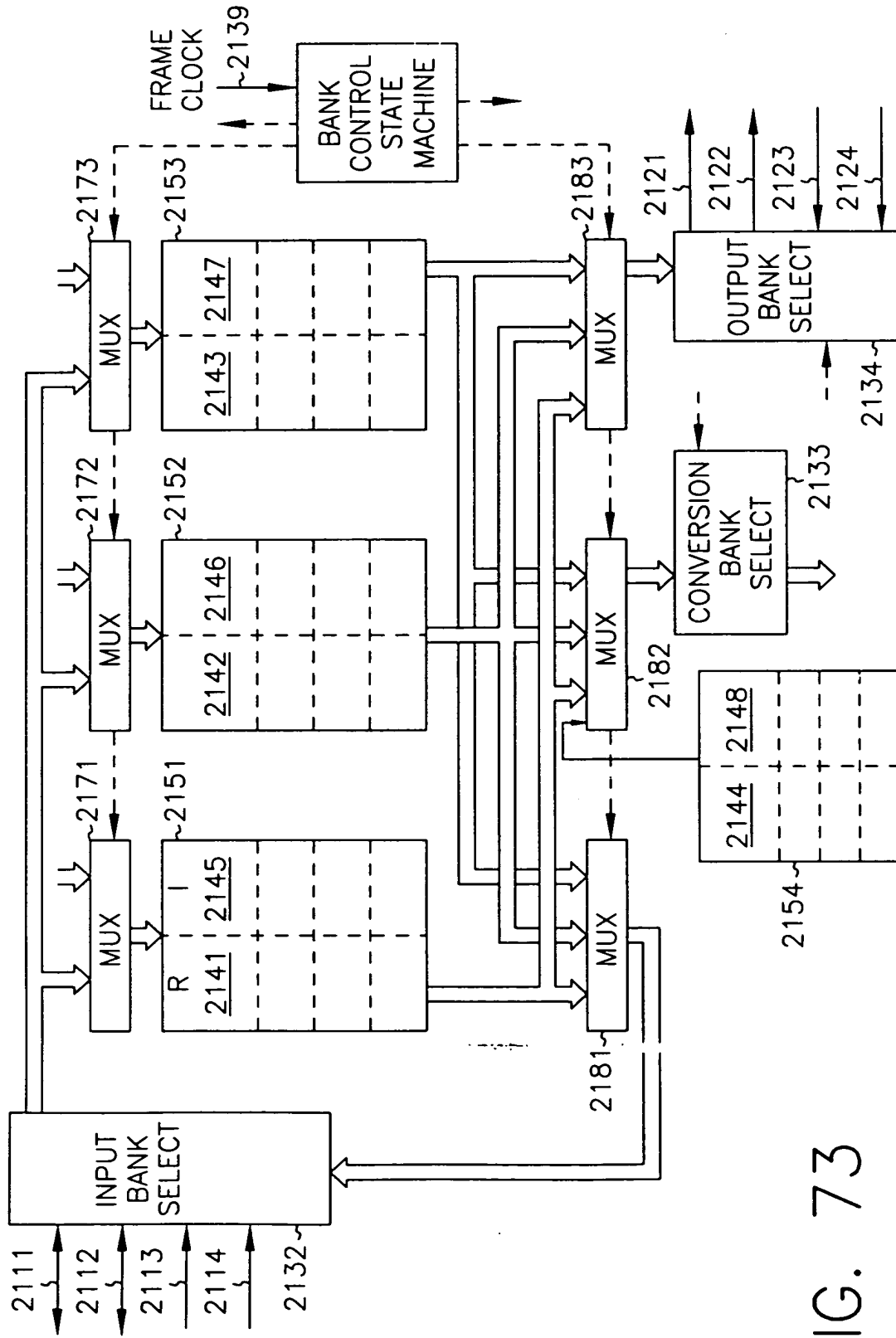
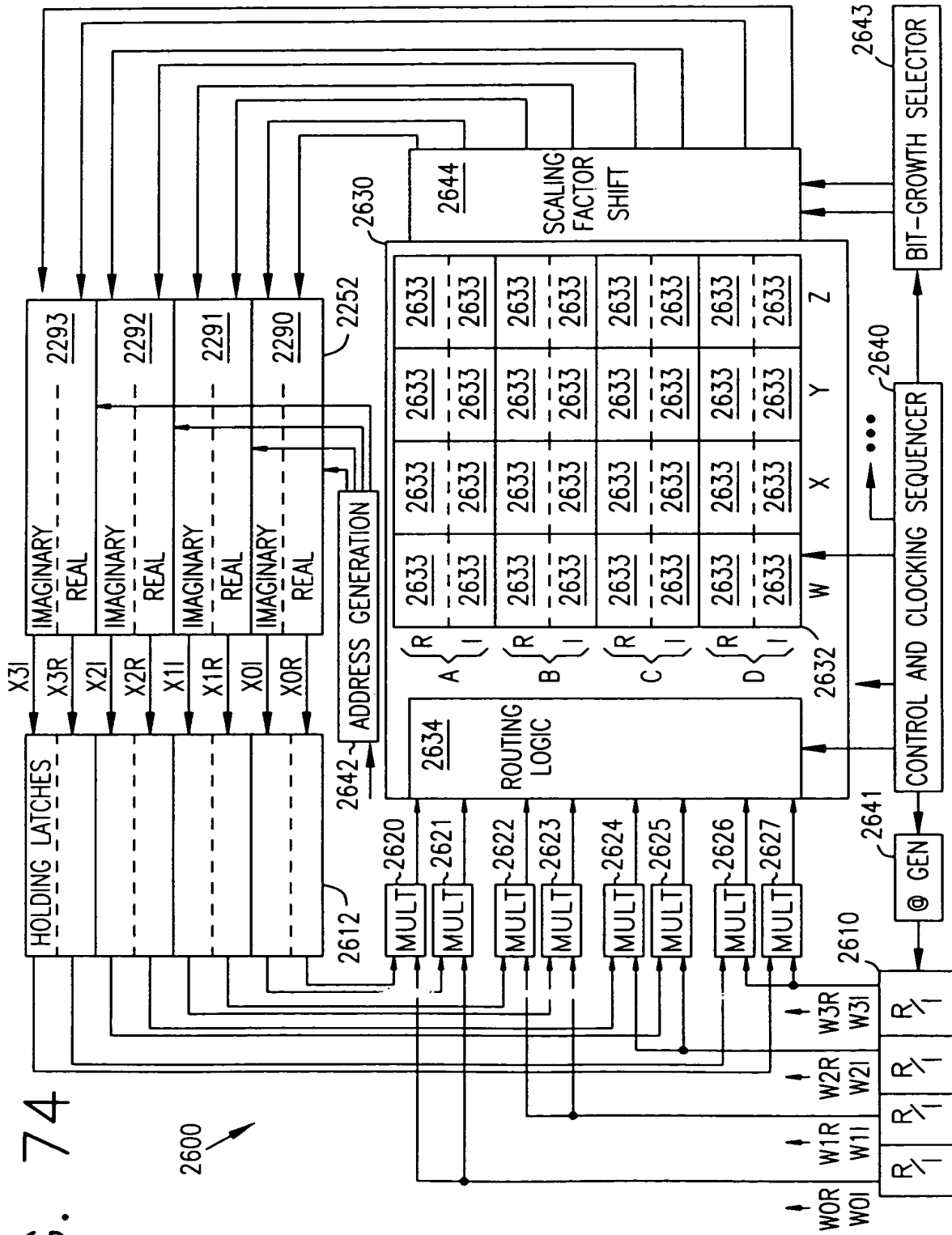


FIG. 73



THIS TABLE SHOWS THE ORDER OF CALCULATION FOR A TRANSPOSED BUTTERFLY:

CO

AWR=WR AWI=WI	AXR=XR AXI=XI	AYR=YR AYI=YI	AZR=ZR AZI=ZI
BWR=WR BWI=WI	BXR=XR BXI=XI	BYR=YR BYI=YI	BZR=ZR BZI=ZI
CWR=WR CWI=WI	CXR=XR CXI=XI	CYR=YR CYI=YI	CZR=ZR CZI=ZI
DWR=WR DWI=WI	DXR=XR DXI=XI	DYR=YR DYI=YI	DZR=ZR DZI=ZI

FIG. 75

CI

AWR=AWR - WI AWI=AWI + WR	AXR=AXR - XI AXI=AXI + XR	AYR=AYR - YI AYI=AYI + YR	AZR=AZR - ZI AZI=AZI + ZR
BWR=BWR - WI BWI=BWI + WR	BXR=BXR - XI BXI=BXI + XR	BYR=BYR - YI BYI=BYI + YR	BZR=BZR - ZI BZI=BZI + ZR
CWR=CWR - WI CWI=CWI + WR	CXR=CXR - XI CXI=CXI + XR	CYR=CYR - YI CYI=CYI + YR	CZR=CZR - ZI CZI=CZI + ZR
DWR=DWR - WI DWI=DWI + WR	DXR=DXR - XI DXI=DXI + XR	DYR=DYR - YI DYI=DYI + YR	DZR=DZR - ZI DZI=DZI + ZR

FIG. 76

C2

~2632

AWR=AWR +WR AWI=AWI +WI	AXR=AXR +XI AXI=AXI -XR	AYR=AYR -YR AYI=AYI -YI	AZR=AZR -ZI AZI=AZI +ZR
BWR=BWR +WR BWI=BWI +WI	BXR=BXR +XI BXI=BXI -XR	BYR=BYR -YR BYI=BYI -YI	BZR=BZR -ZI BZI=BZI +ZR
CWR=CWR +WR CWI=CWI +WI	CXR=CXR +XI CXI=CXI -XR	CYR=CYR -YR CYI=CYI -YI	CZR=CZR -ZI CZI=CZI +ZR
DWR=DWR +WR DWI=DWI +WI	DXR=DXR +XI DXI=DXI -XR	DYR=DYR -YR DYI=DYI -YI	DZR=DZR -ZI DZI=DZI +ZR

2800

FIG. 77

C3

~2632

AWR=AWR -WI AWI=AWI +WR	AXR=AXR +XR AXI=AXI +XI	AYR=AYR +YI AYI=AYI -YR	AZR=AZR -ZR AZI=AZI -ZI
BWR=BWR -WI BWI=BWI +WR	BXR=BXR +XR BXI=BXI +XI	BYR=BYR +YI BYI=BYI -YR	BZR=BZR -ZR BZI=BZI -ZI
CWR=CWR -WI CWI=CWI +WR	CXR=CXR +XR CXI=CXI +XI	CYR=CYR +YI CYI=CYI -YR	CZR=CZR -ZR CZI=CZI -ZI
DWR=DWR -WI DWI=DWI +WR	DXR=DXR +XR DXI=DXI +XI	DYR=DYR +YI DYI=DYI -YR	DZR=DZR -ZR DZI=DZI -ZI

2800

FIG. 78

C4

~2632

AWR=AWR +WR AWI=AWI +WI	AXR=AXR -XR AXI=AXI -XI	AYR=AYR +YR AYI=AYI +YI	AZR=AZR -ZR AZI=AZI -ZI
BWR=BWR +WR BWI=BWI +WI	BXR=BXR -XR BXI=BXI -XI	BYR=BYR +YR BYI=BYI +YI	BZR=BZR -ZR BZI=BZI -ZI
CWR=CWR +WR CWI=CWI +WI	CXR=CXR -XR CXI=CXI -XI	CYR=CYR +YR CYI=CYI +YI	CZR=CZR -ZR CZI=CZI -ZI
DWR=DWR +WR DWI=DWI +WI	DXR=DXR -XR DXI=DXI -XI	DYR=DYR +YR DYI=DYI +YI	DZR=DZR -ZR DZI=DZI -ZI

2800

FIG. 79

C5

~2632

AWR=AWR -WI AWI=AWI +WR	AXR=AXR +XI AXI=AXI -XR	AYR=AYR -YI AYI=AYI +YR	AZR=AZR +ZI AZI=AZI -ZR
BWR=BWR -WI BWI=BWI +WR	BXR=BXR +XI BXI=BXI -XR	BYR=BYR -YI BYI=BYI +YR	BZR=BZR +ZI BZI=BZI -ZR
CWR=CWR -WI CWI=CWI +WR	CXR=CXR +XI CXI=CXI -XR	CYR=CYR -YI CYI=CYI +YR	CZR=CZR +ZI CZI=CZI -ZR
DWR=DWR -WI DWI=DWI +WR	DXR=DXR +XI DXI=DXI -XR	DYR=DYR -YI DYI=DYI +YR	DZR=DZR +ZI DZI=DZI -ZR

2800

FIG. 80

C6

~2632

AWR=AWR +WR AWI=AWI +WI	AXR=AXR -XI AXI=AXI +XR	AYR=AYR -YR AYI=AYI -YI	AZR=AZR +ZI AZI=AZI -ZR
BWR=BWR +WR BWI=BWI +WI	BXR=BXR -XI BXI=BXI +XR	BYR=BYR -YR BYI=BYI -YI	BZR=BZR +ZI BZI=BZI -ZR
CWR=CWR +WR CWI=CWI +WI	CXR=CXR -XI CXI=CXI +XR	CYR=CYR -YR CYI=CYI -YI	CZR=CZR +ZI CZI=CZI -ZR
DWR=DWR +WR DWI=DWI +WI	DXR=DXR -XI DXI=DXI +XR	DYR=DYR -YR DYI=DYI -YI	DZR=DZR +ZI DZI=DZI -ZR

2800

FIG. 81

C7

~2632

AWR=AWR -WI AWI=AWI +WR	AXR=AXR -XR AXI=AXI -XI	AYR=AYR +YI AYI=AYI -YR	AZR=AZR -ZR AZI=AZI +ZI
BWR=BWR -WI BWI=BWI +WR	BXR=BXR -XR BXI=BXI -XI	BYR=BYR +YI BYI=BYI -YR	BZR=BZR -ZR BZI=BZI +ZI
CWR=CWR -WI CWI=CWI +WR	CXR=CXR -XR CXI=CXI -XI	CYR=CYR +YI CYI=CYI -YR	CZR=CZR -ZR CZI=CZI +ZI
DWR=DWR -WI DWI=DWI +WR	DXR=DXR -XR DXI=DXI -XI	DYR=DYR +YI DYI=DYI -YR	DZR=DZR -ZR DZI=DZI +ZI

2800

FIG. 82

THIS TABLE SHOWS THE ORDER OF CALCULATION FOR A TRANSPOSED BUTTERFLY:

2632

2810

AWR = WR+XR+YR+ZR AWI = WI+XI+YI+ZI	AXR = WR-XI-YR+ZI AXI = WI+XR-YI-ZR	AYR = WR-XR+YR-ZR AYI = WI-XI+YI-ZI	AZR = WR+XI-YR-ZI AZI = WI-XR-YI+ZR
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

FIG. 83

2632

2810

AWR = AWR-(WI+XI+YI+ZI) AWI = AWI+(WR+XR+YR+ZR)	AXR = AXR-(WI+XR-YI-ZR) AXI = AXI+(WR-XI-YR+ZI)	AYR = AYR-(WI-XI+YI-ZI) AYI = AYI+(WR-XR+YR-ZR)	AZR = AZR-(WI-XR-YI+ZR) AZI = AZI+(WR+XI-YR-ZI)
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

FIG. 84

C2

2632

2810

-	-	-	-	-
-	-	-	-	-
BWR = WR+XR+YR+ZR BWI = WI+XI+YI+ZI	BXR = WR-XI-YR+ZI BXI = WI+XR-YI-ZR	BYR = WR-XR+YR-ZR BYI = WI-XI+YI-ZI	BZR = WR+XI-YR-ZI BZI = WI-XR-YI+ZR	
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

FIG. 85

C3

2632

2810

-	-	-	-	-
-	-	-	-	-
BWR = BWR-(WI+XI+YI+ZI) BWI = BWI+(WR+XR+YR+ZR)	BXR = BXR-(WI+XR-YI-ZR) BXI = BXI+(WR-XI-YR+ZI)	BYR = BYR-(WI-XI+YI-ZI) BYI = BYI+(WR-XR+YR-ZR)	BZR = BZR-(WI-XR-YI+ZR) BZI = BZI+(WR+XI-YR-ZI)	
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

FIG. 86

C4

2632				2810			
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
CWR = WR+XR+YR+ZR CWI = WI+XI+YI+ZI	CXR = WR-XI-YR+ZI CXI = WI+XR-YI-ZR	CYR = WR-XR+YR-ZR CYI = WI-XI+YI-ZI	CZR = WR+XI-YR-ZI CZI = WI-XR-YI+ZR				
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

FIG. 87

C5

2632				2810			
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
CWR = CWR-(WI+XI+YI+ZI) CWI = CWI+(WR+XR+YR+ZR)	CXR = CXR-(WI+XR-YI-ZR) CXI = CXI+(WR-XI-YR+ZI)	CYR = CYR-(WI-XI+YI-ZI) CYI = CYI+(WR-XR+YR-ZR)	CZR = CZR-(WI-XR-YI+ZR) CZI = CZI+(WR+XI-YR-ZI)				
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

FIG. 88

C6

2632

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
DWR = WR+XR+YR+ZR DWI = WI+XI+YI+ZI	DXR = WR-XI-YR+ZI DXI = WI+XR-YI-ZR	DYR = WR-XR+YR-ZR DYI = WI-XI+YI-ZI	DZR = WR+XI-YR-ZI DZI = WI-XR-YI+ZR		

FIG. 89

C7

2632

-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
DWR = DWR-(WI+XI+YI+ZI) DWI = DWI+(WR+XR+YR+ZR)	DXR = DXR-(WI+XR-YI-ZR) DXI = DXI+(WR-XI-YR+ZI)	DYR = DYR-(WI-XI+YI-ZI) DYI = DYI+(WR-XR+YR-ZR)	DZR = DZR-(WI-XR-YI+ZR) DZI = DZI+(WR+XI-YR-ZI)		

FIG. 90

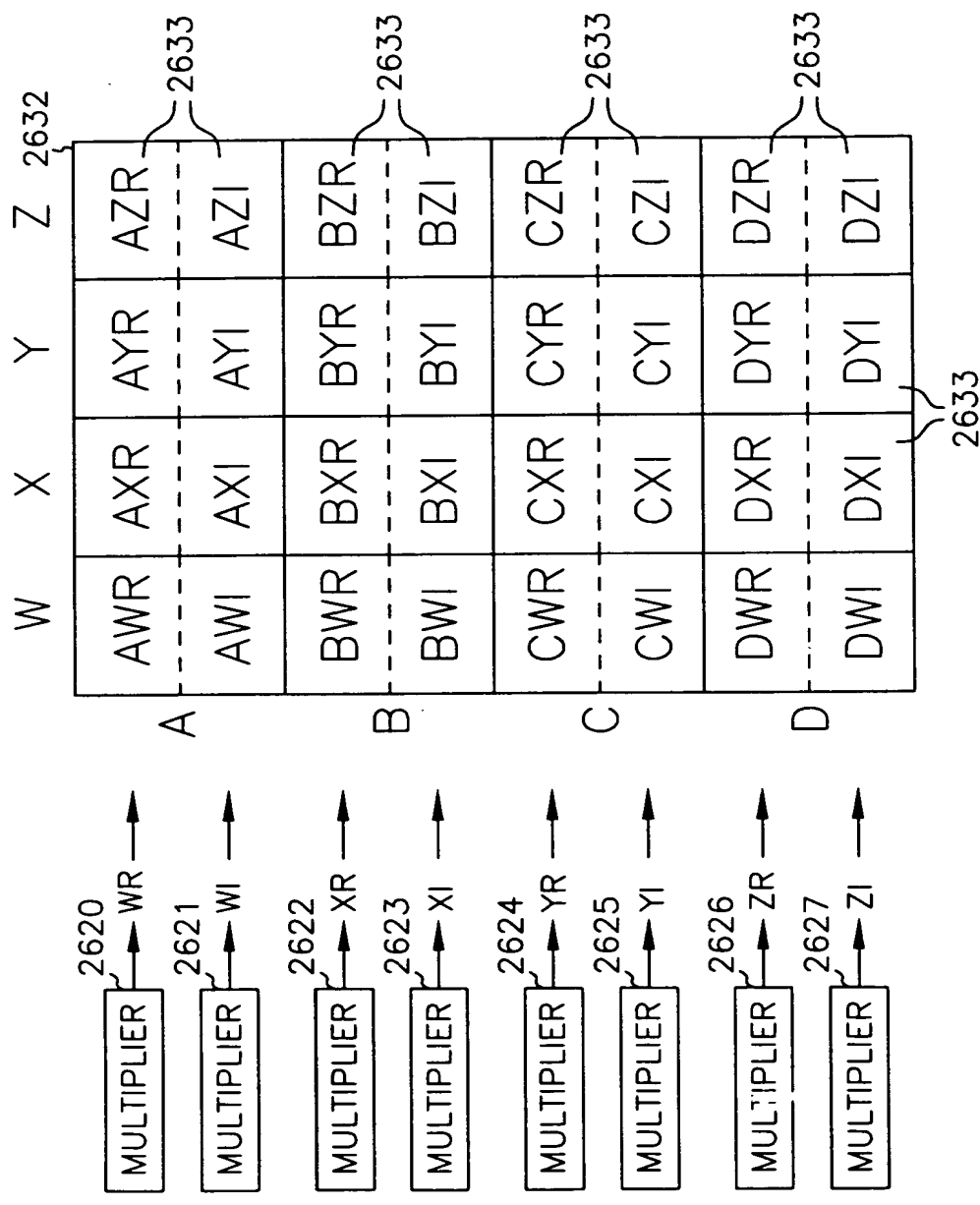


FIG. 91

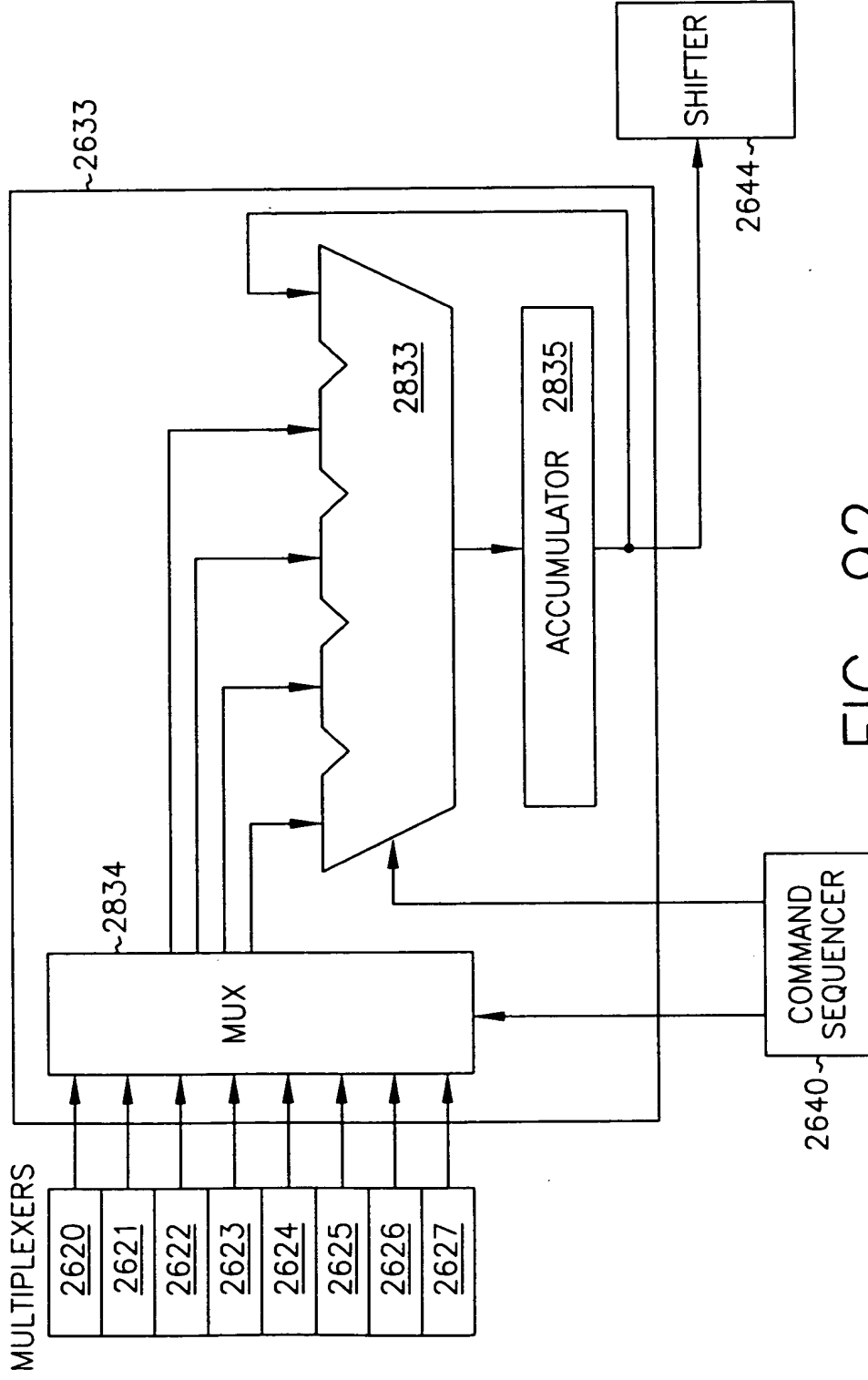


FIG. 92

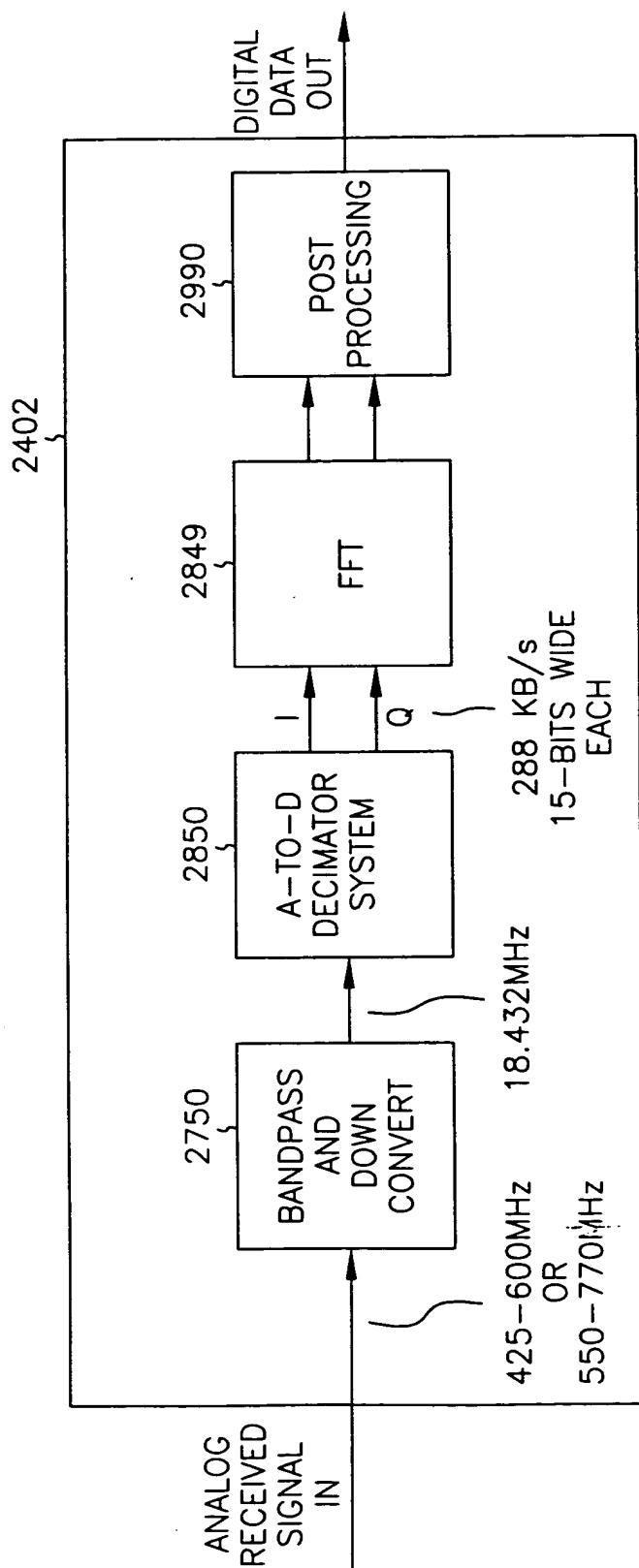


FIG. 93

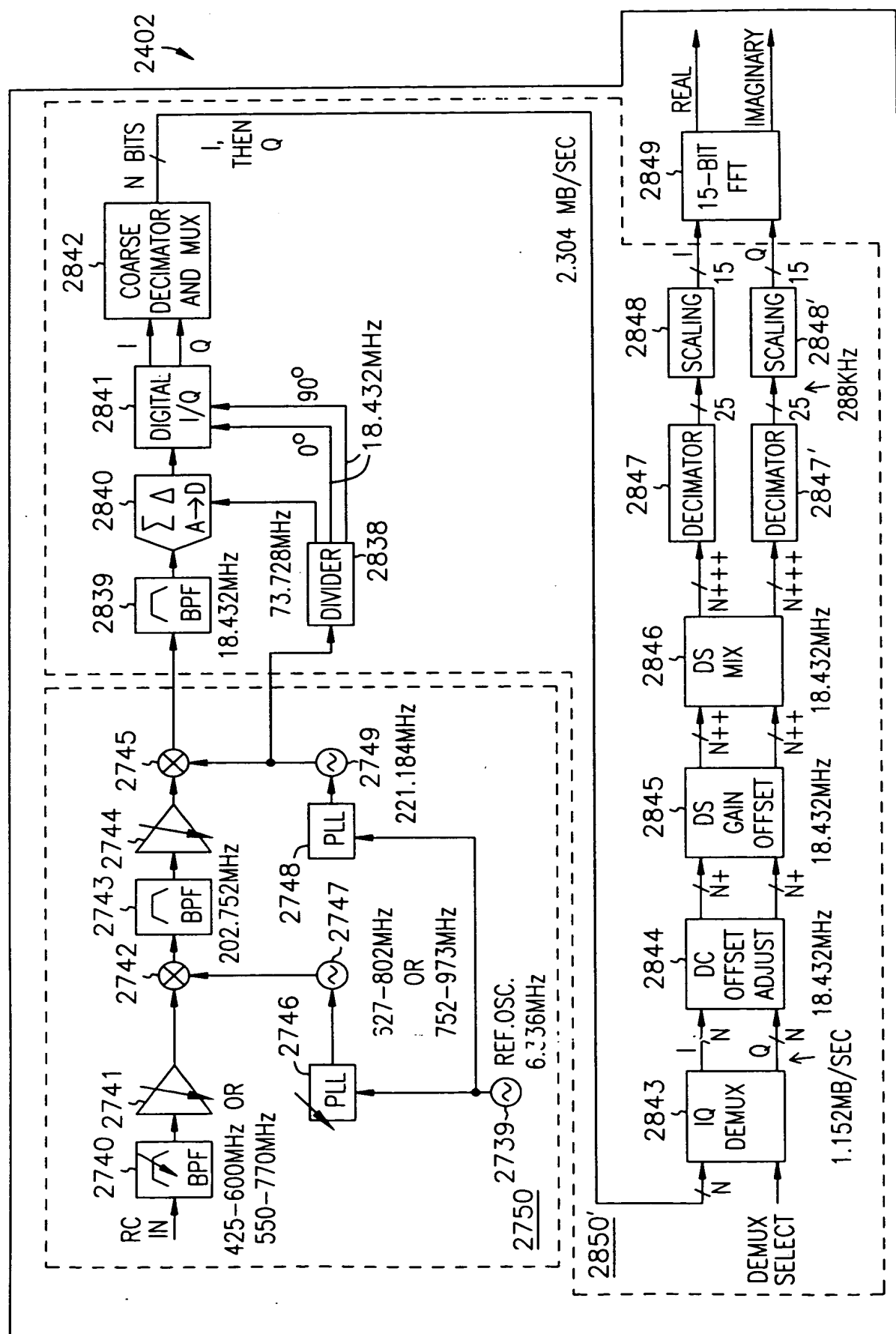


FIG. 94

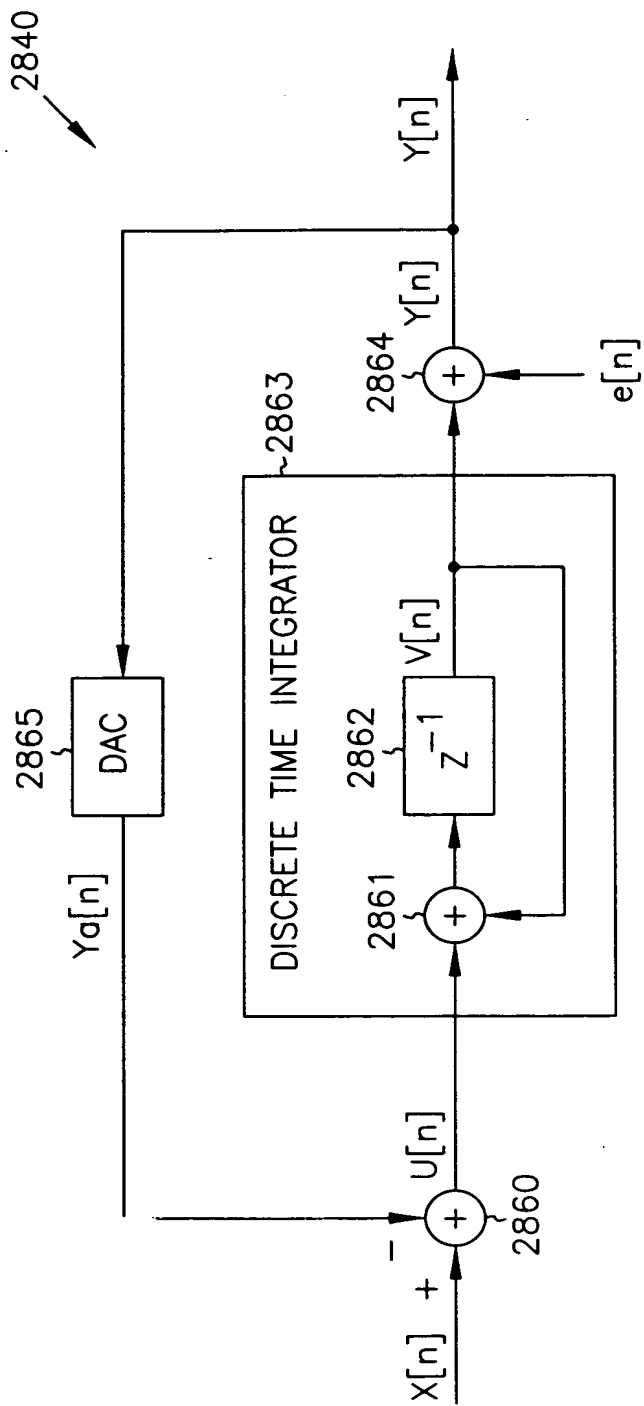


FIG. 95

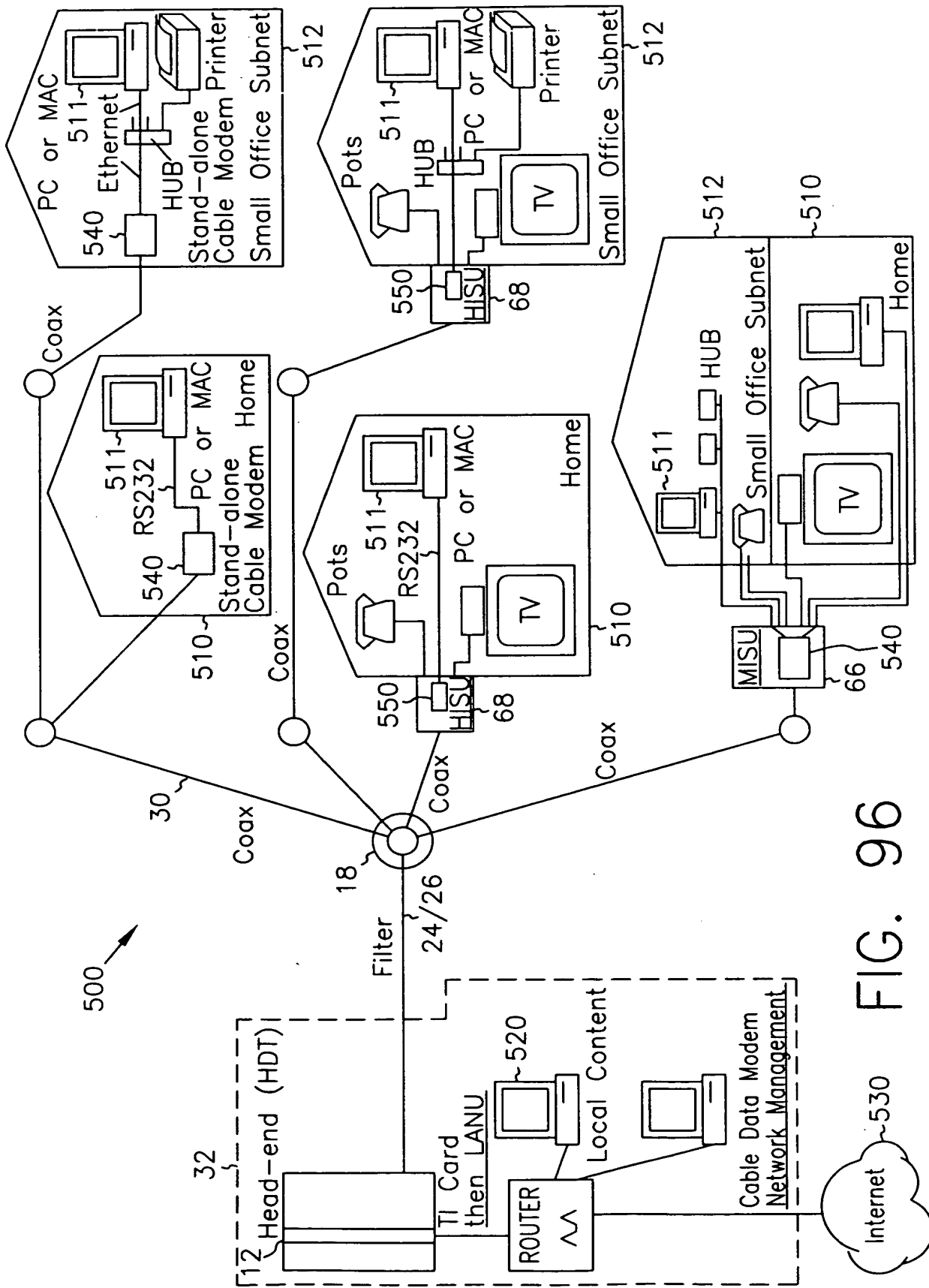


FIG. 96

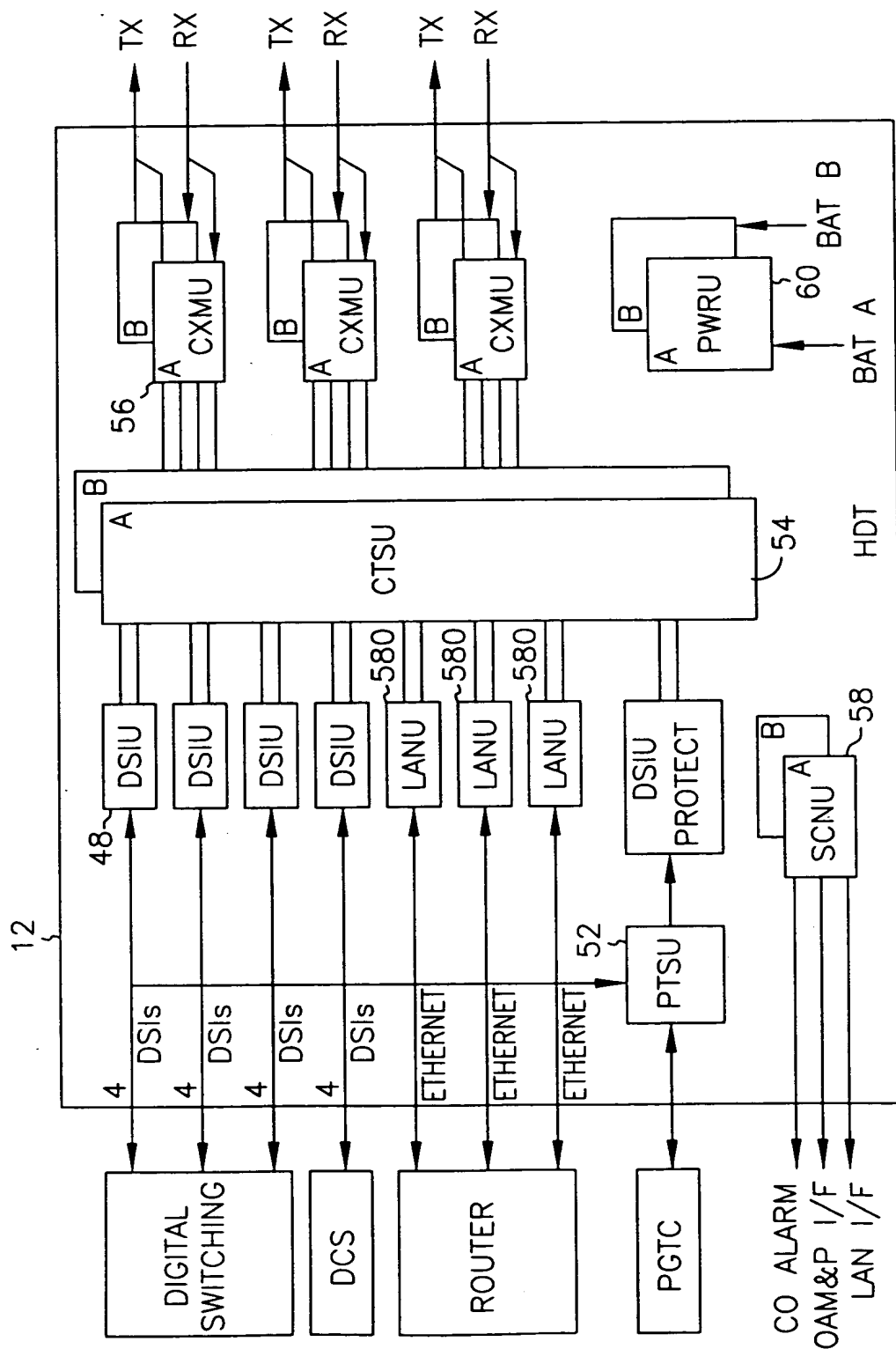


FIG. 97

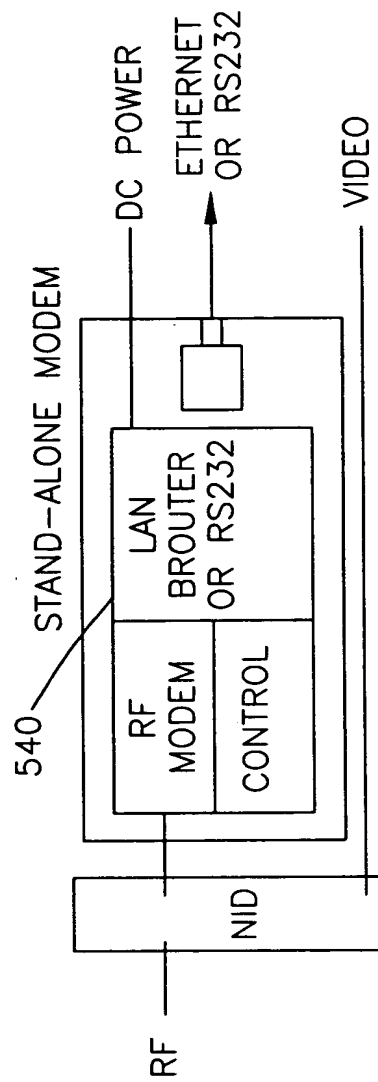
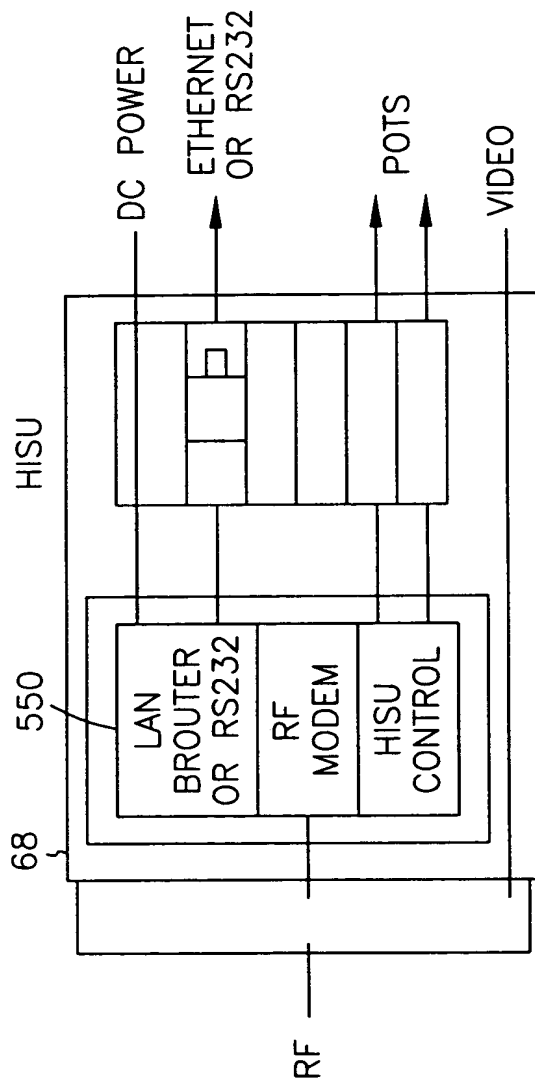


FIG. 98

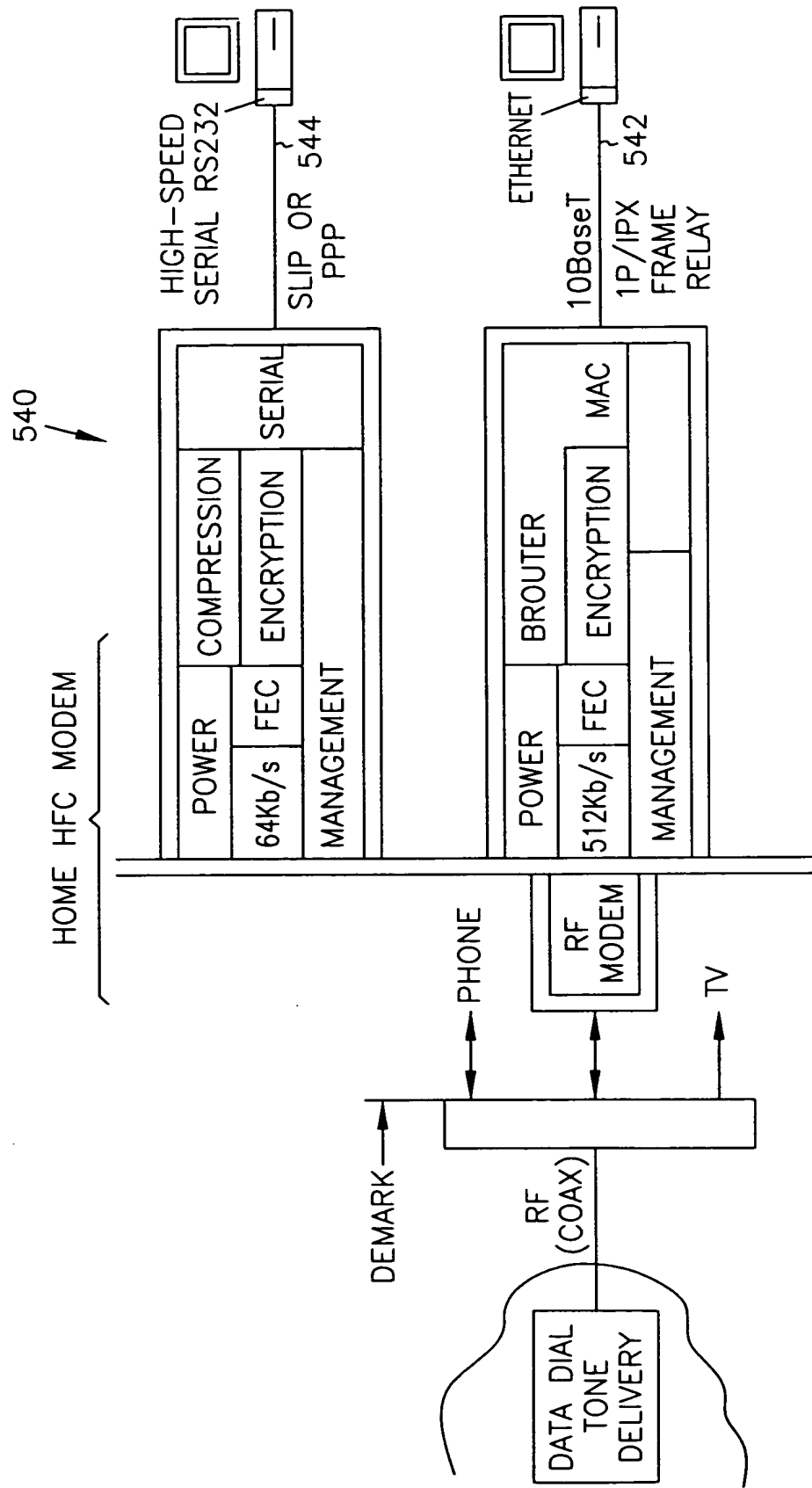


FIG. 99

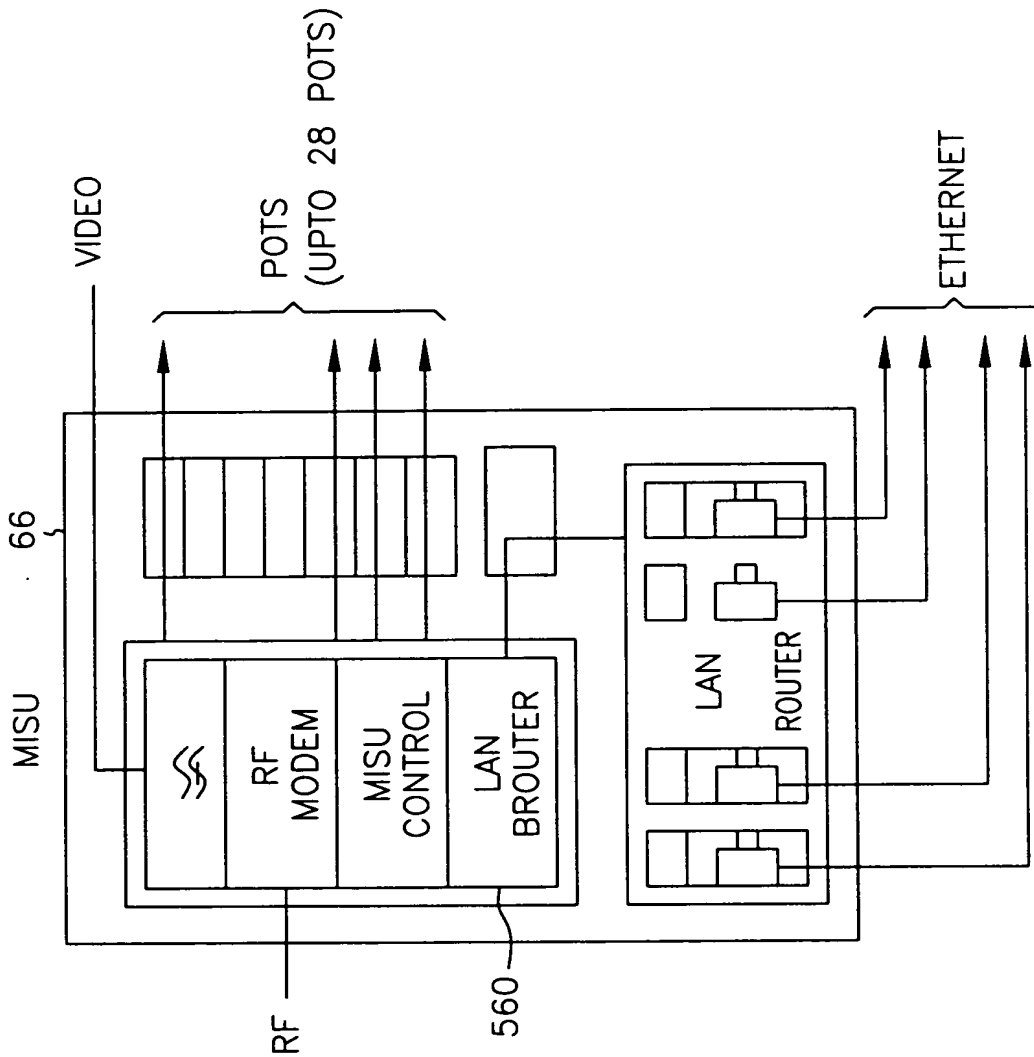


FIG. 100

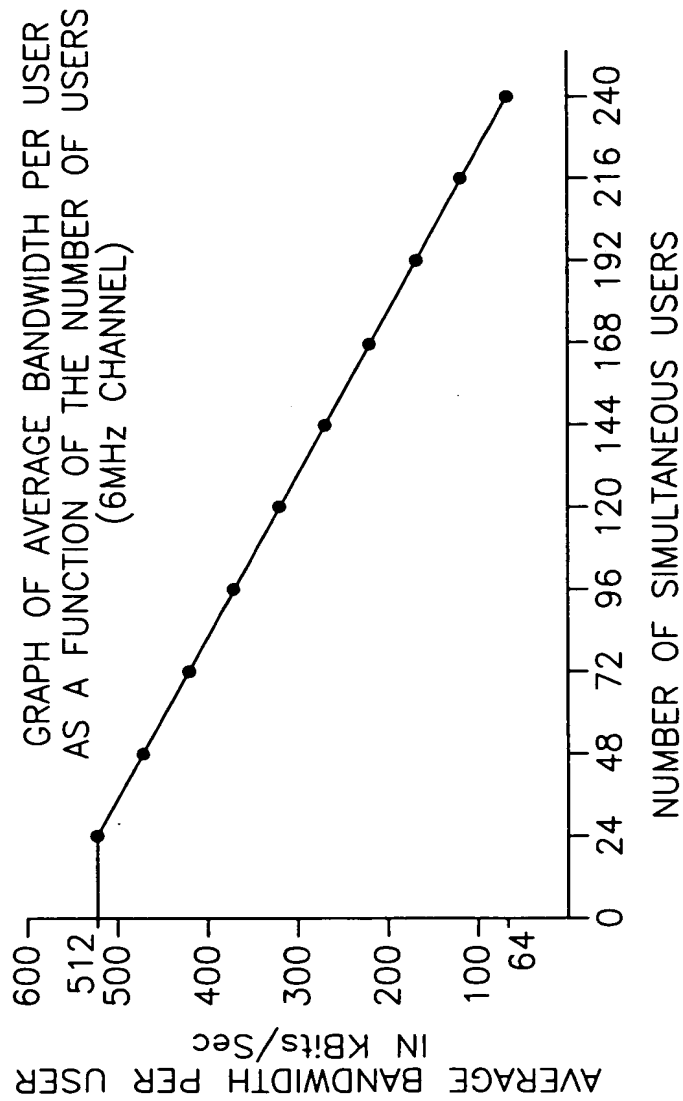
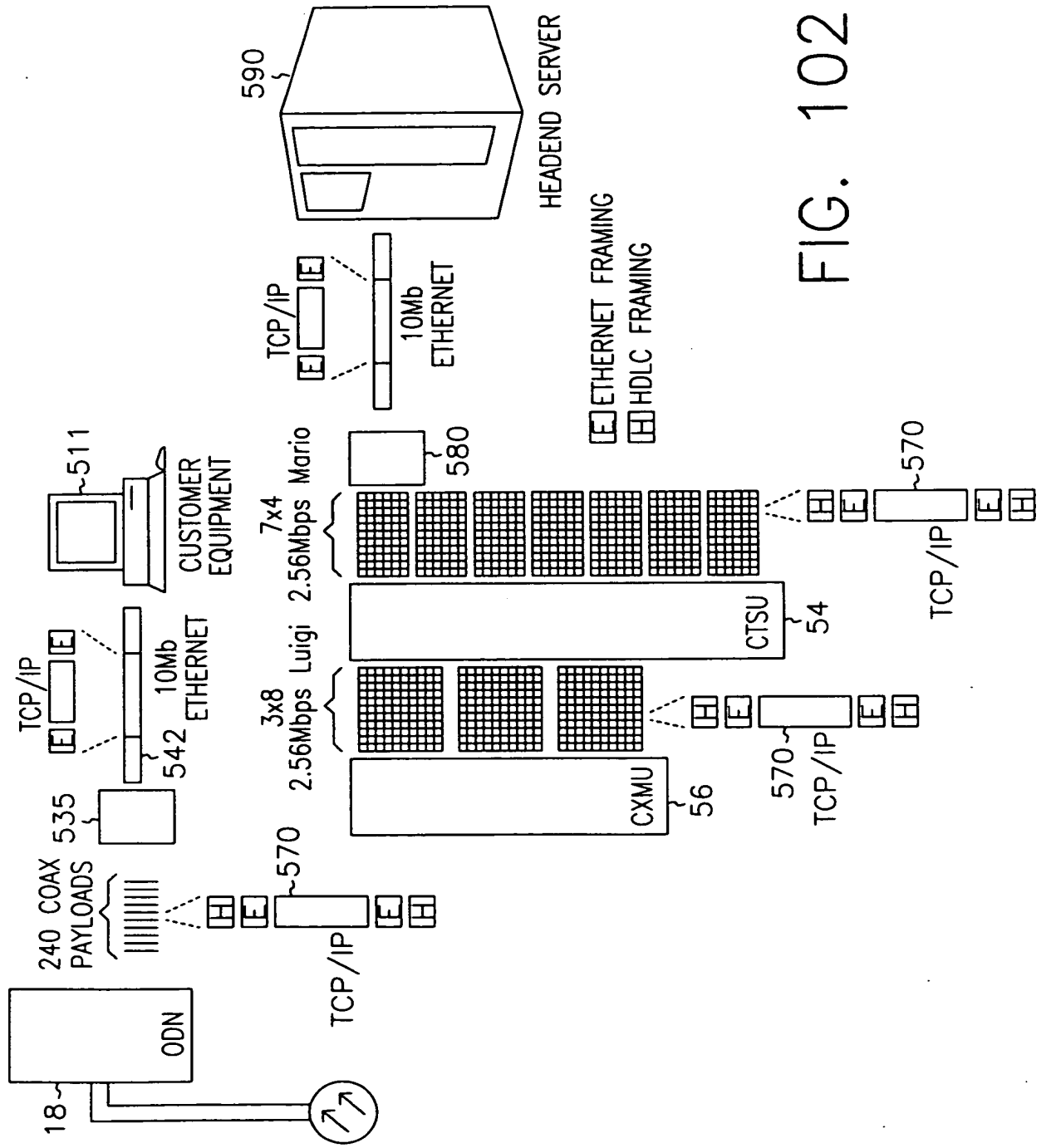
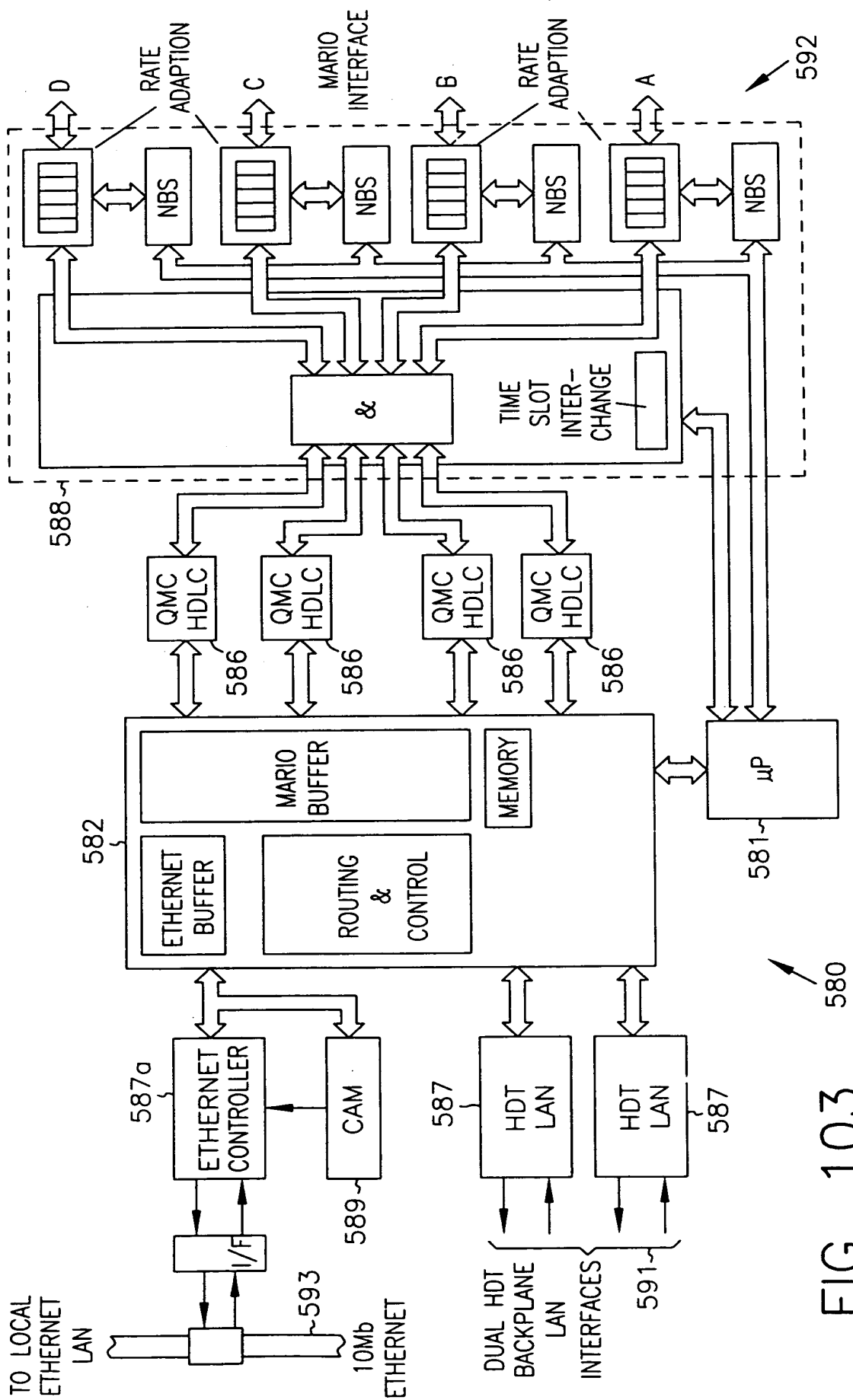


FIG. 101





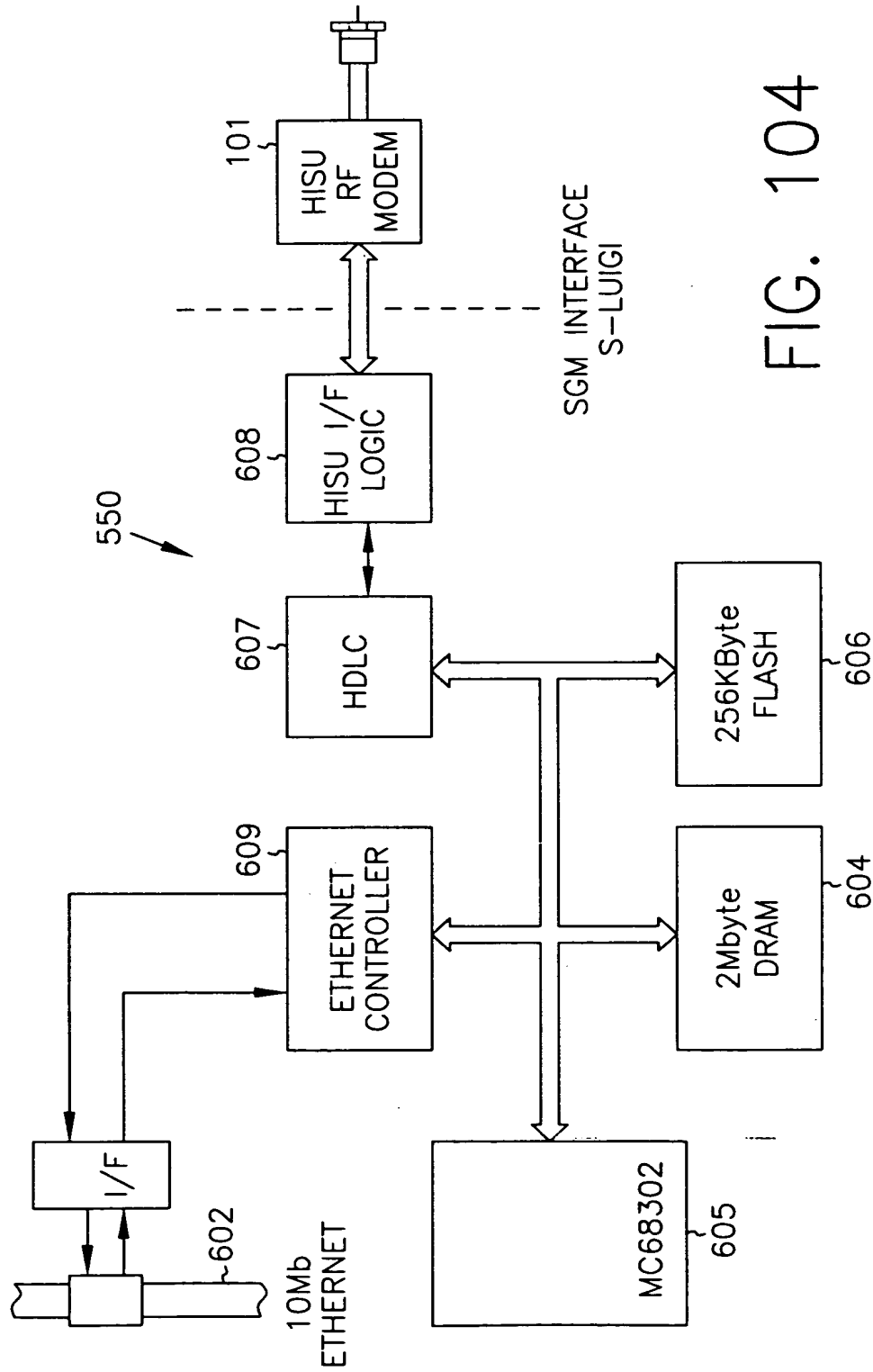


FIG. 104

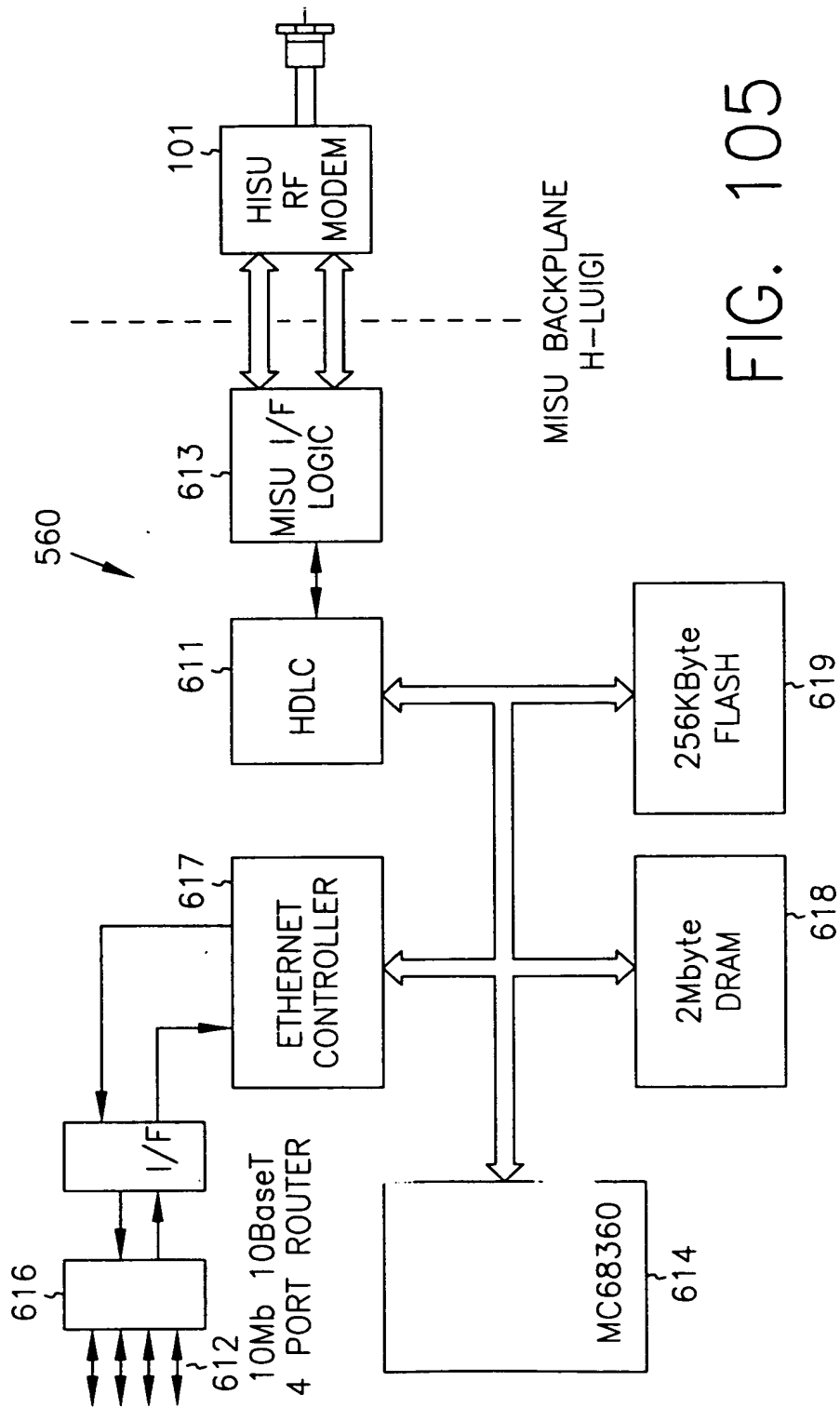


FIG. 105

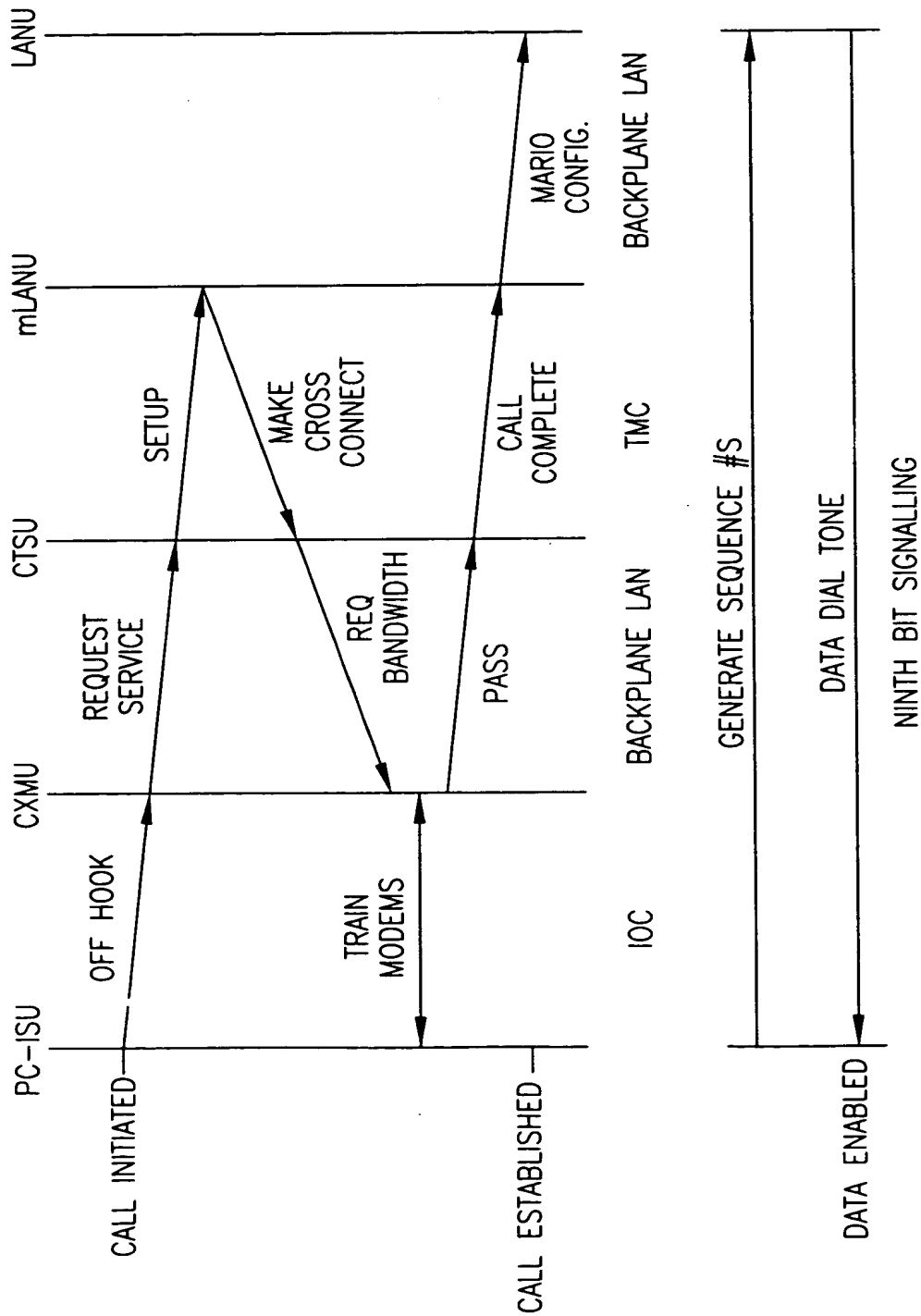


FIG. 106

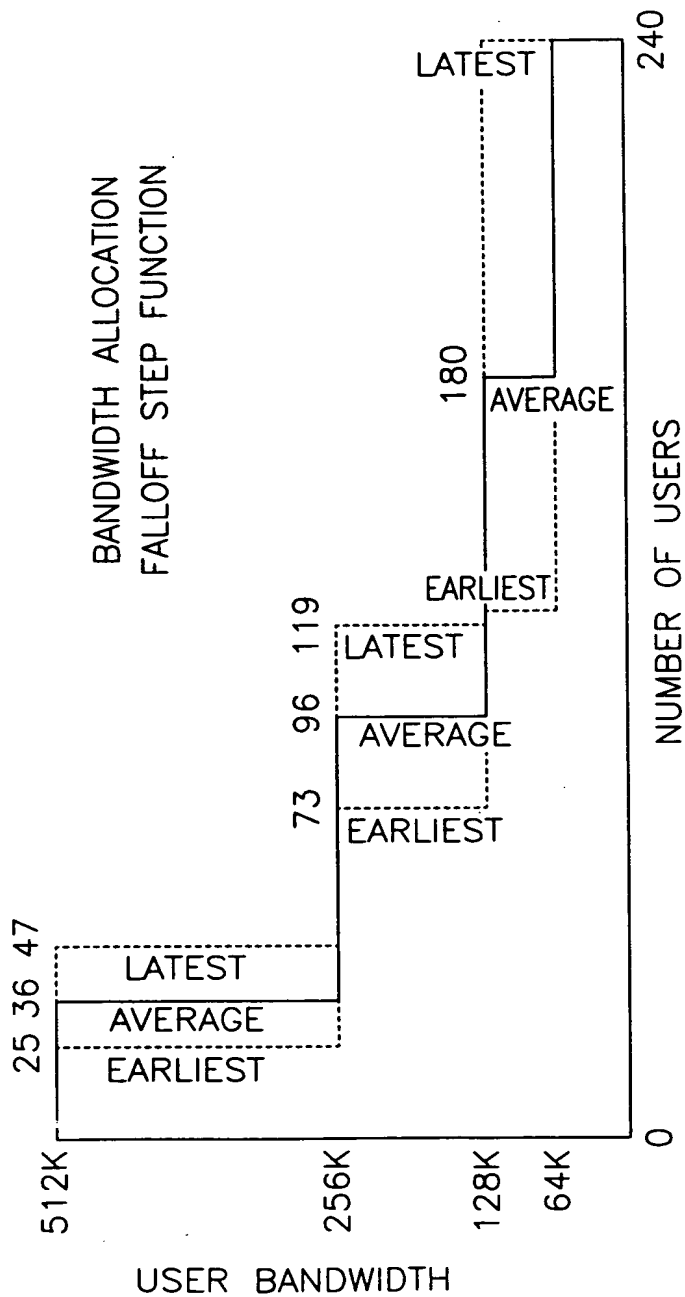


FIG. 107

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

THE RF SPECTRUM OF 24 USERS WITH 512Kbs

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

ADDING THE 25th USER

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

ADDING THE 26th USER, ETC

FIG. 108

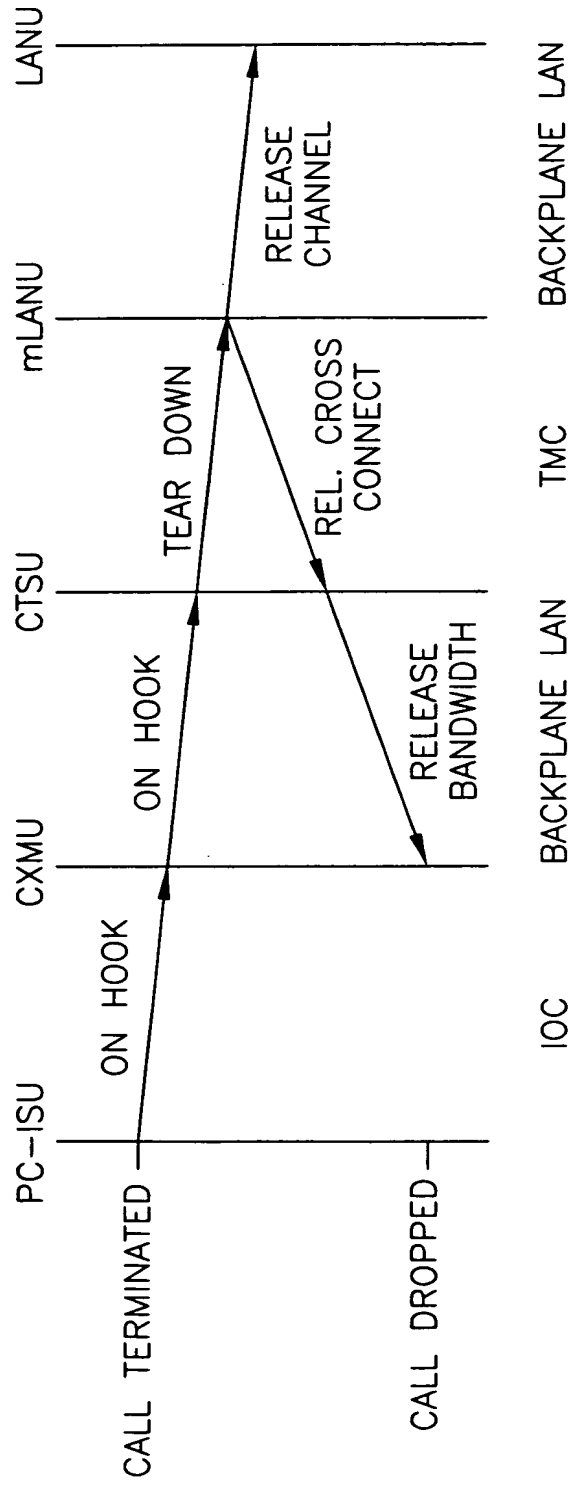


FIG. 110

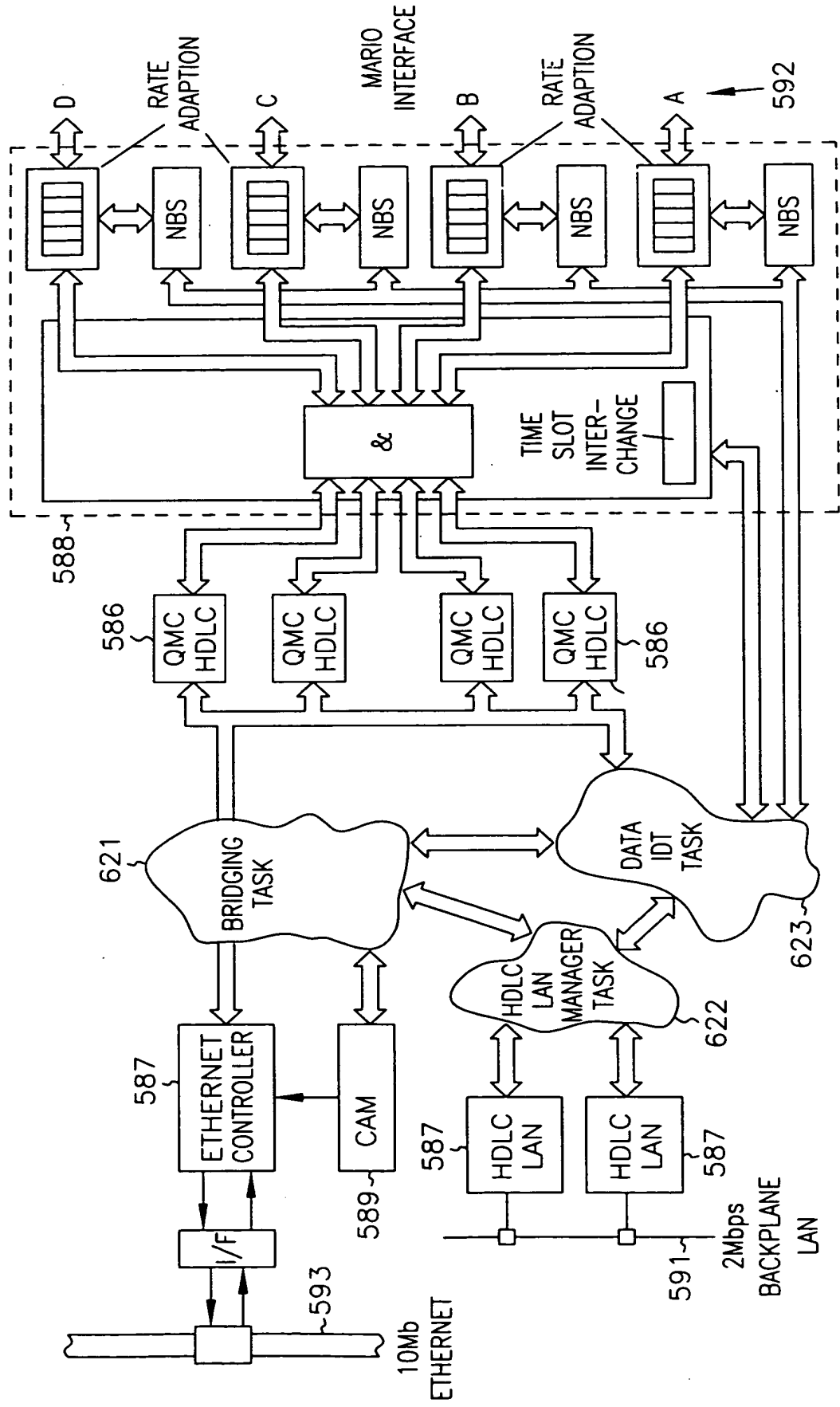


FIG. 111

620

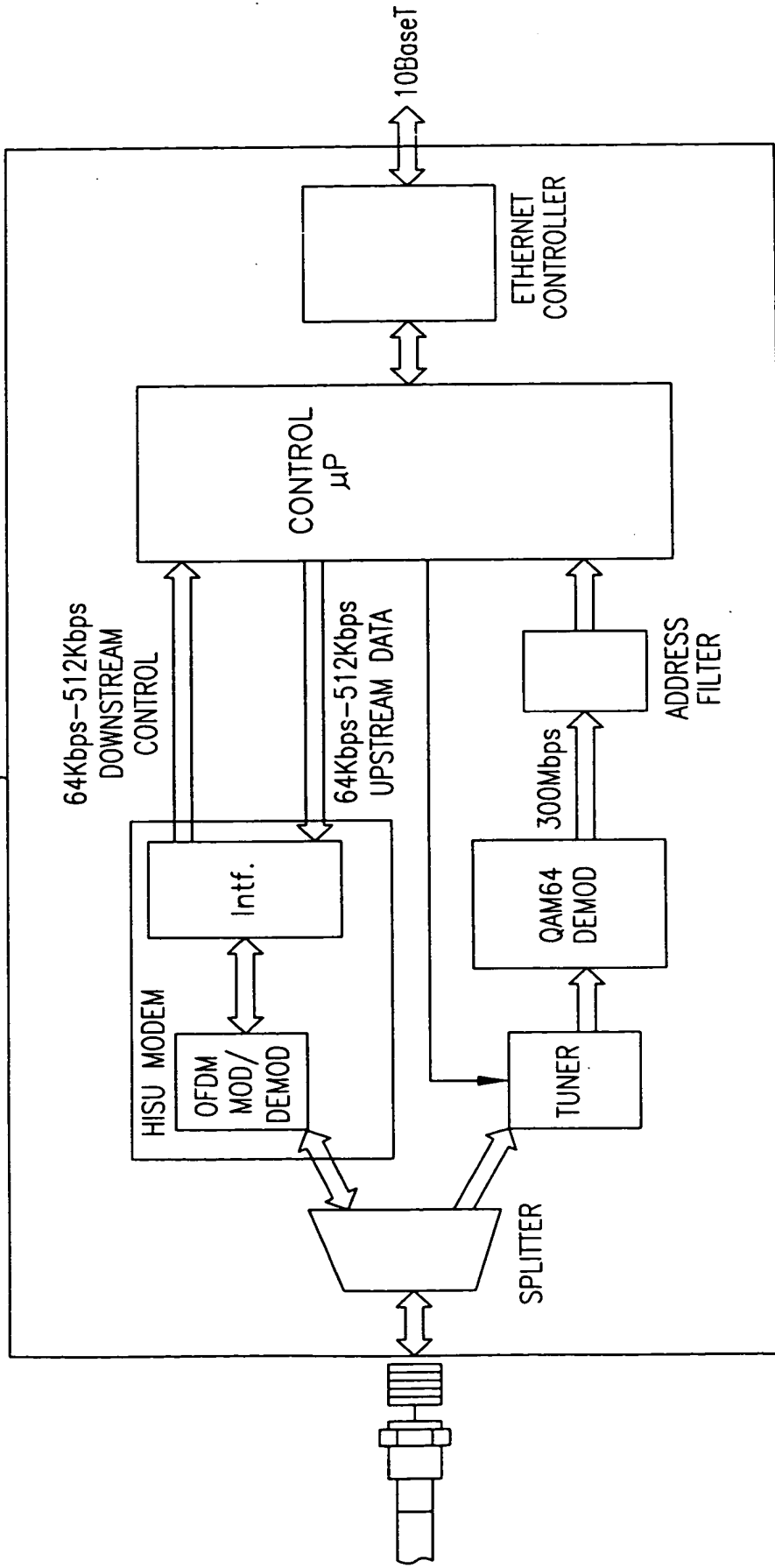


FIG. 112

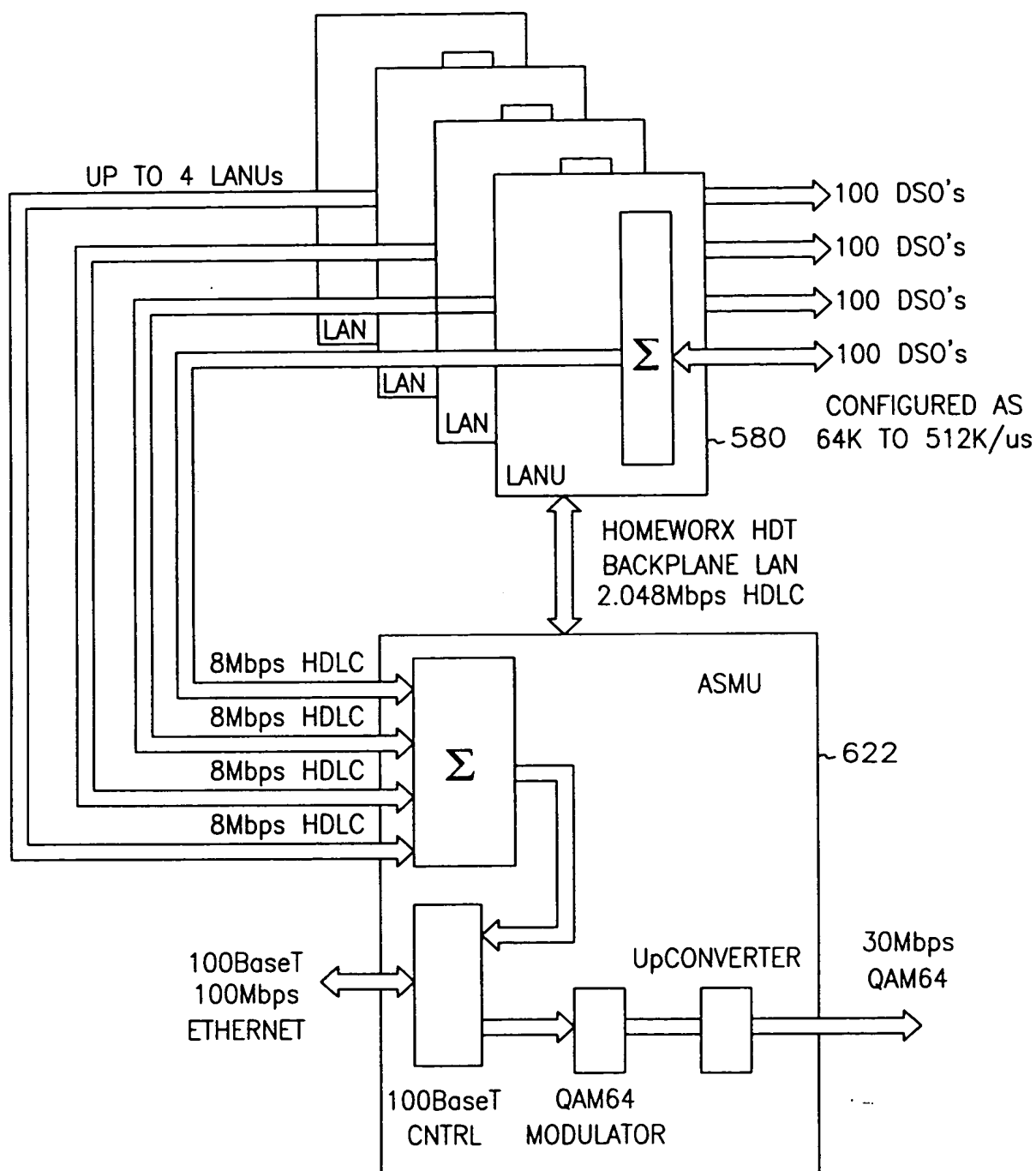


FIG. 113

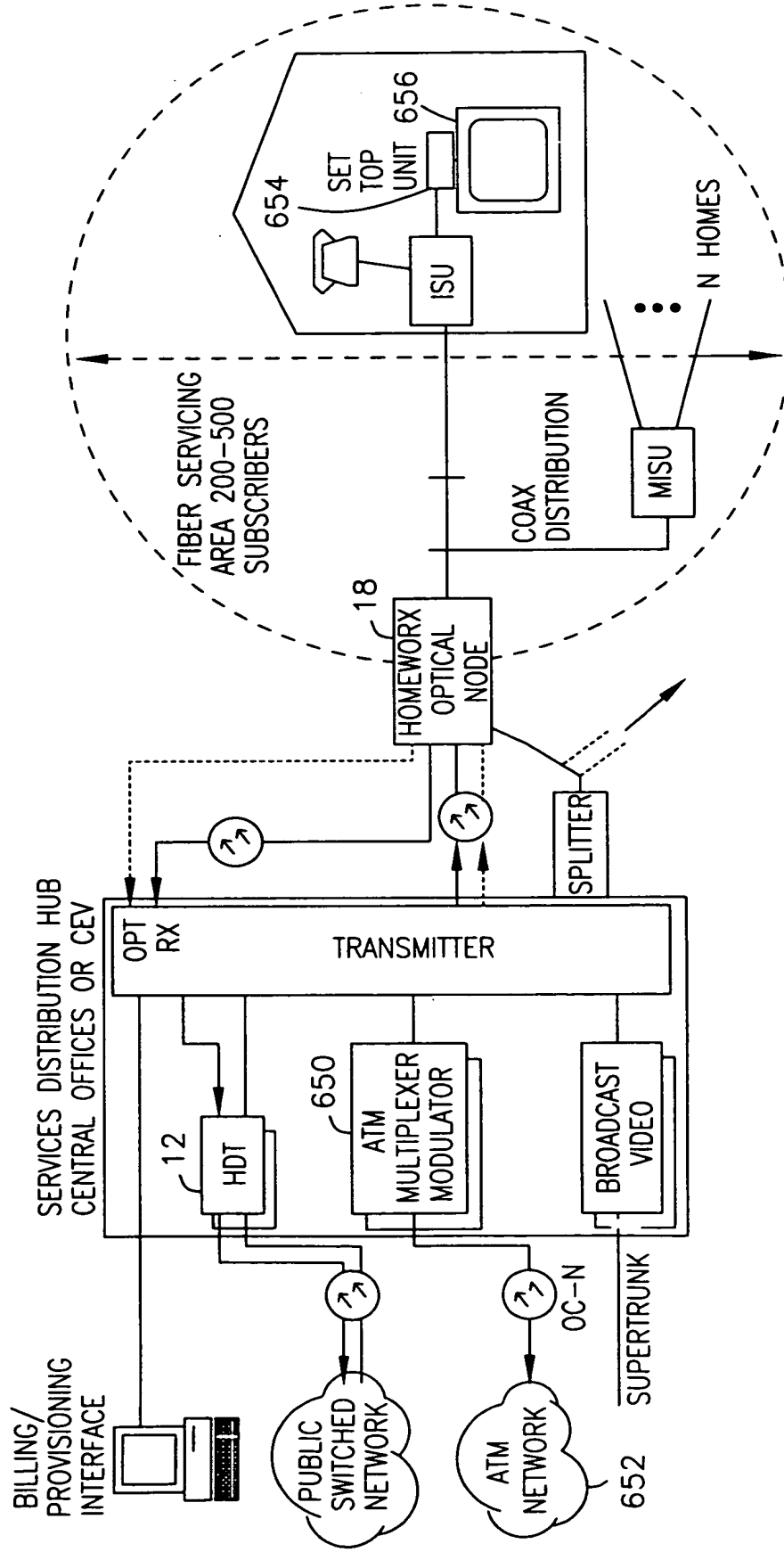


FIG. 114

TOP-20-2220000

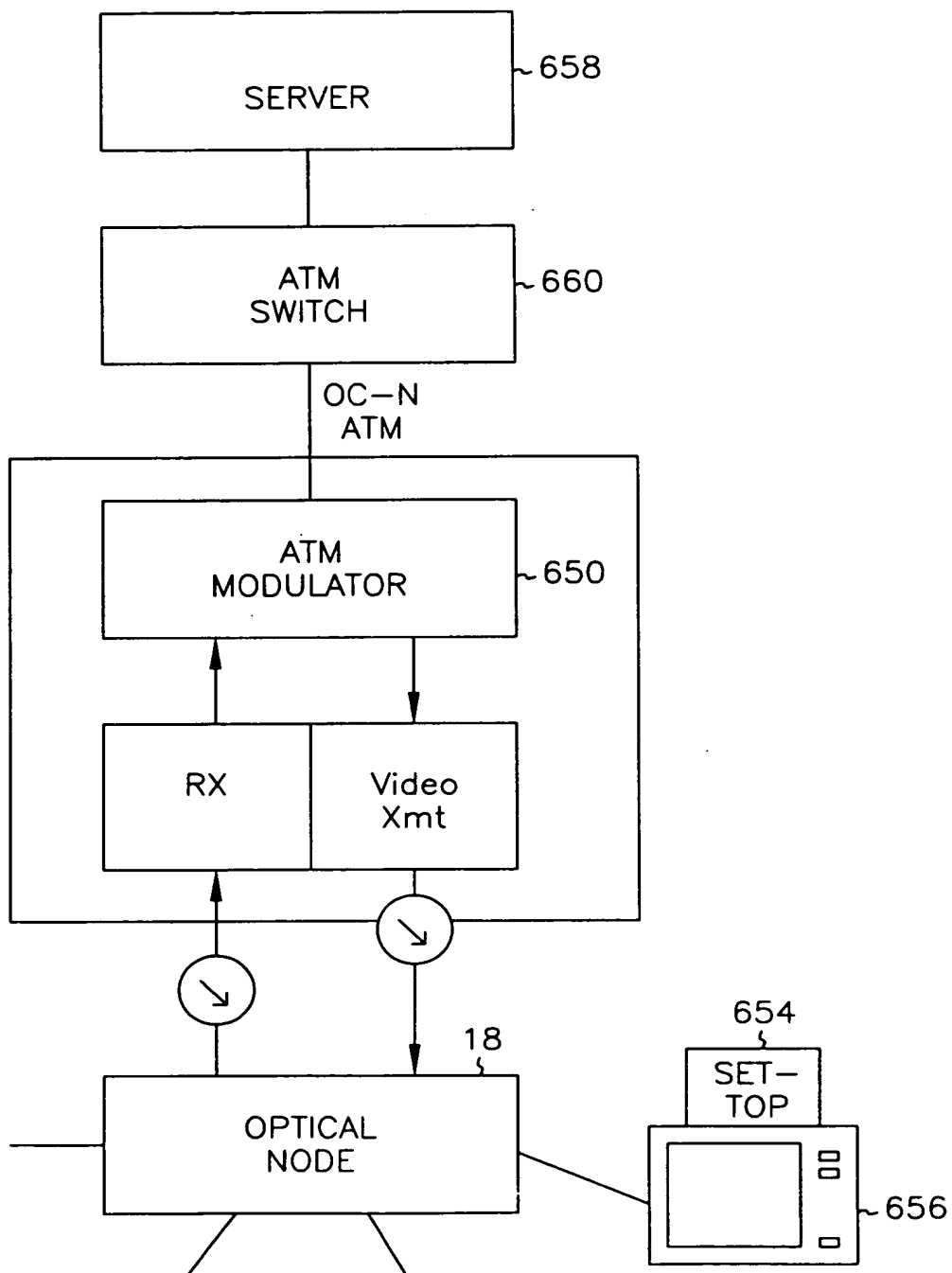


FIG. 115

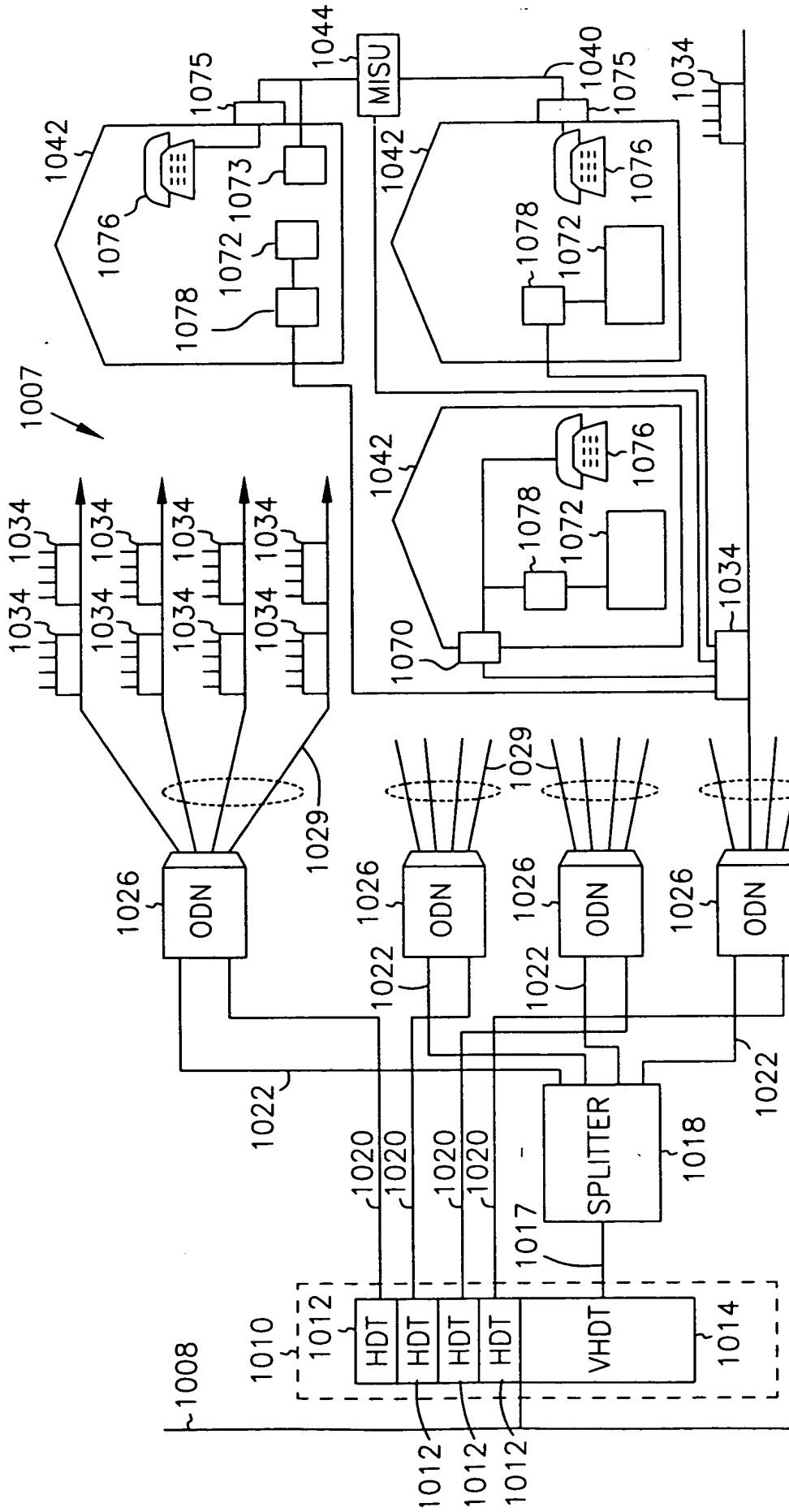
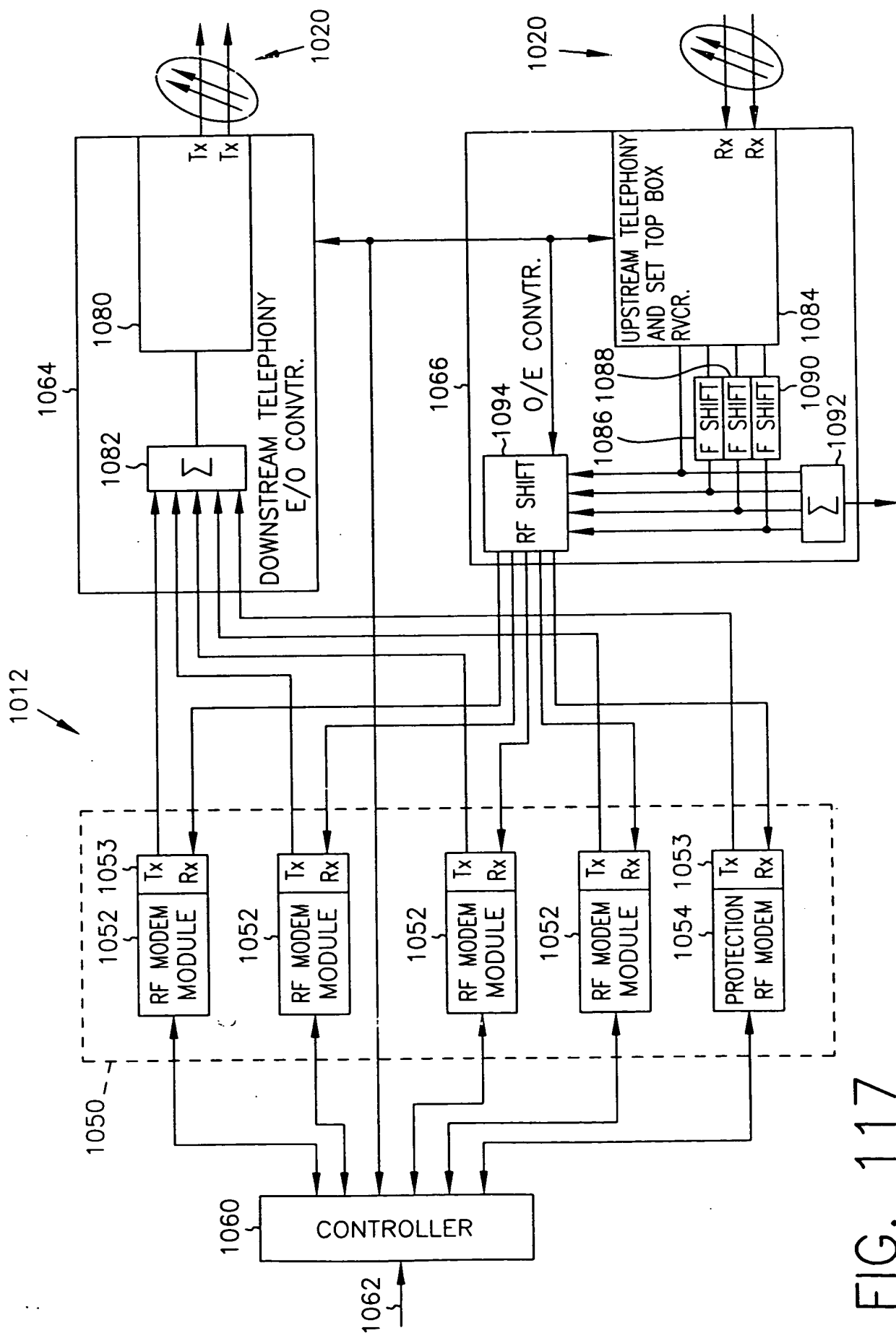


FIG. 116



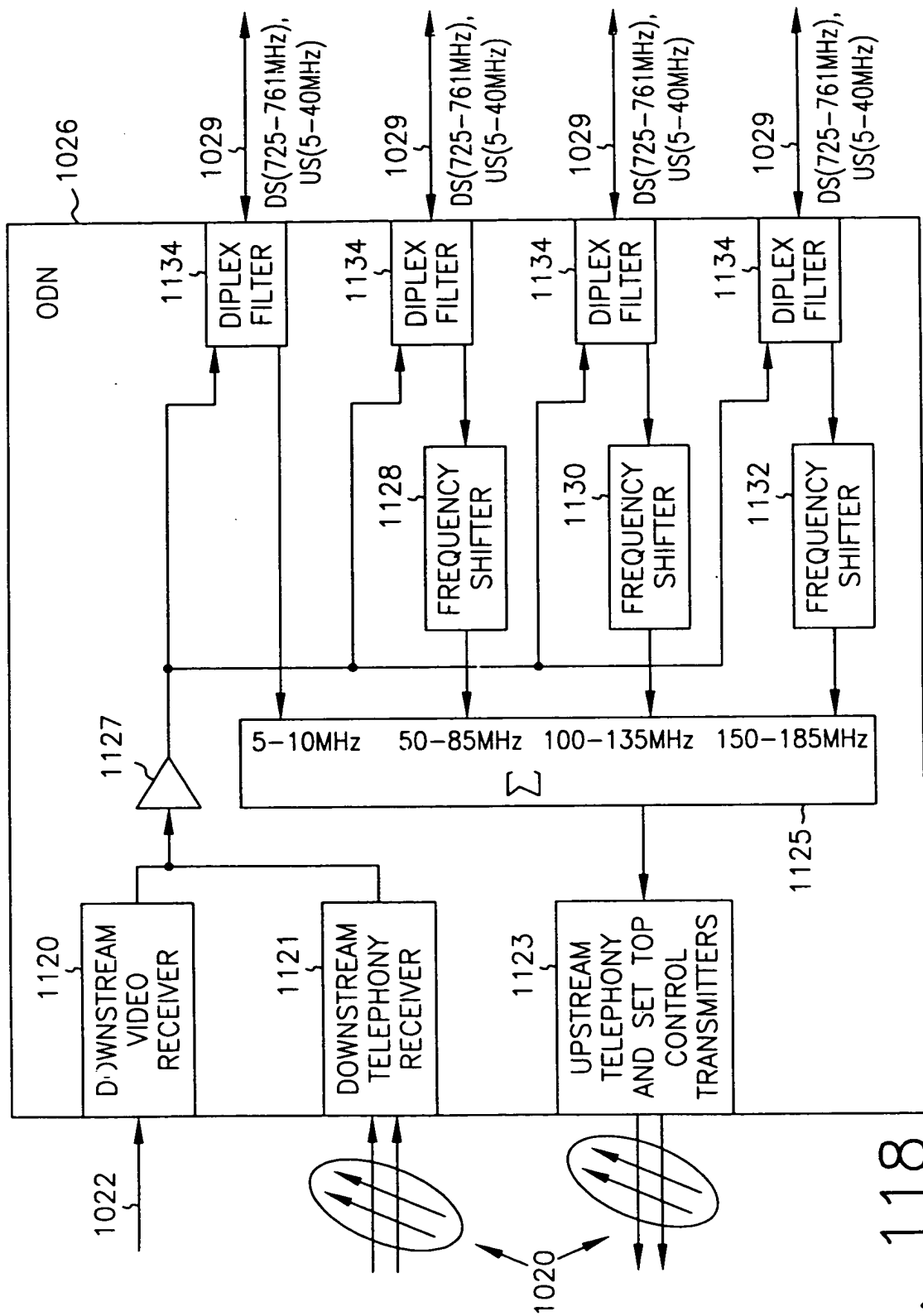
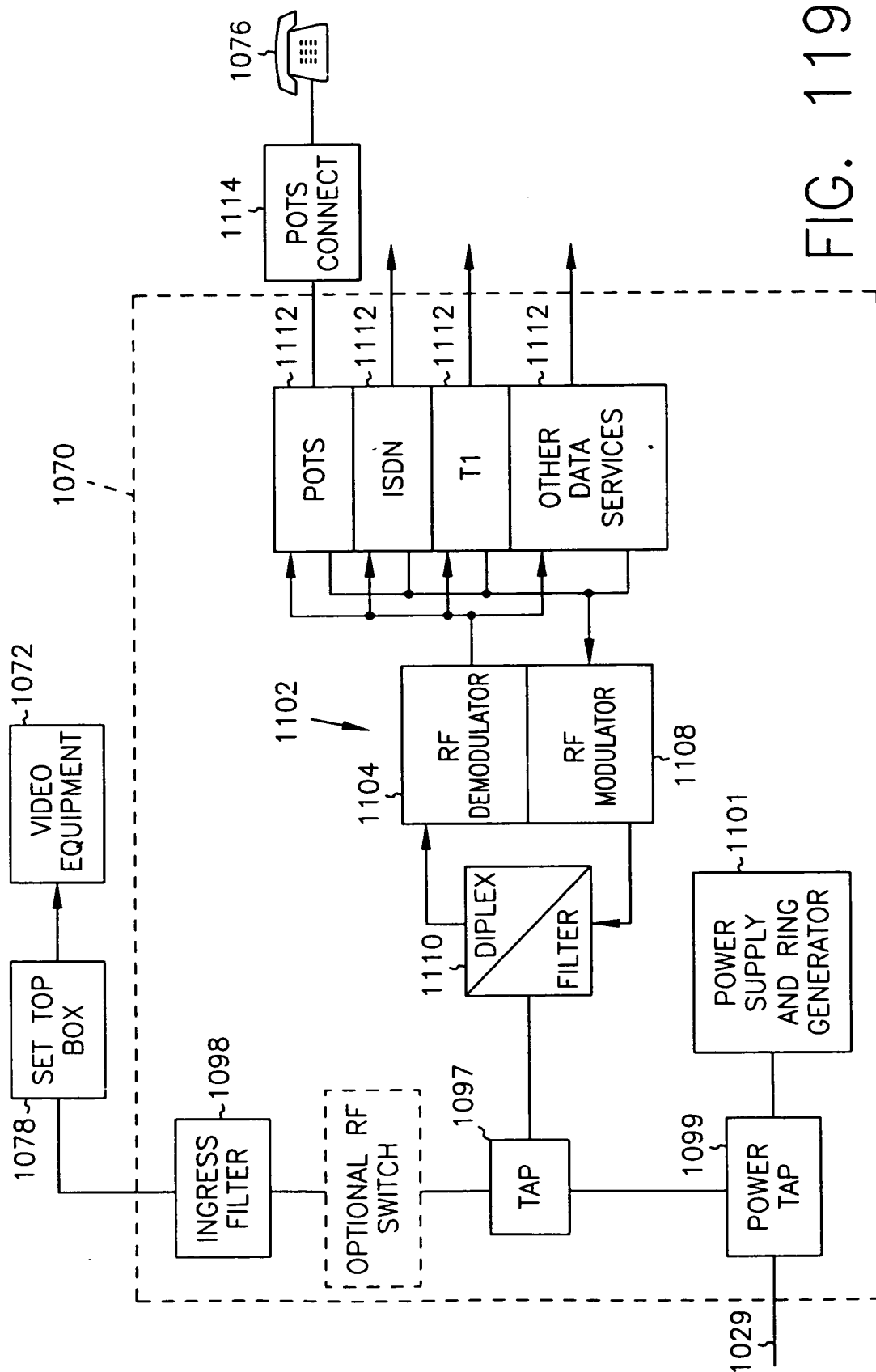


FIG. 118

[illegible]

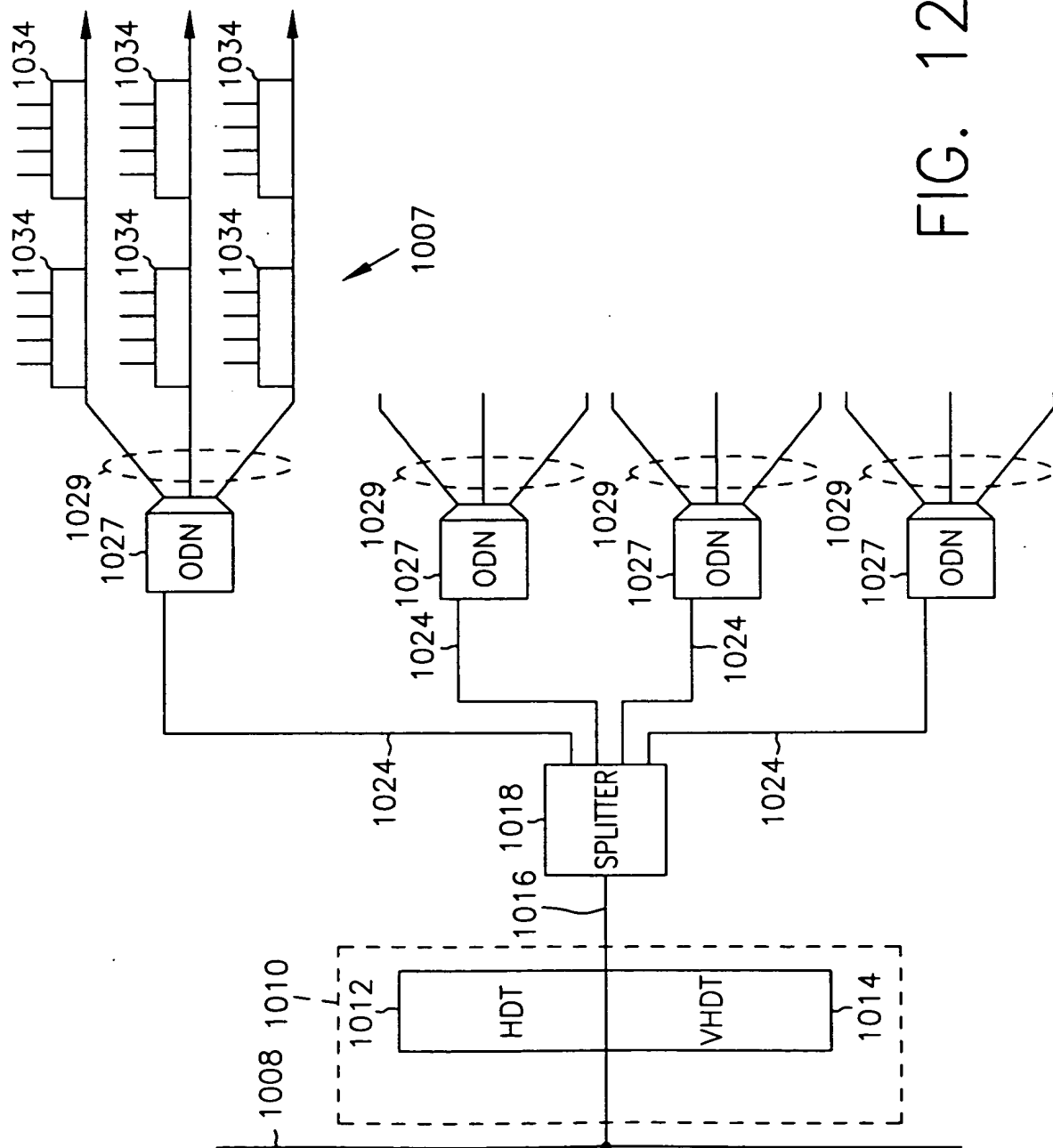


FIG. 120

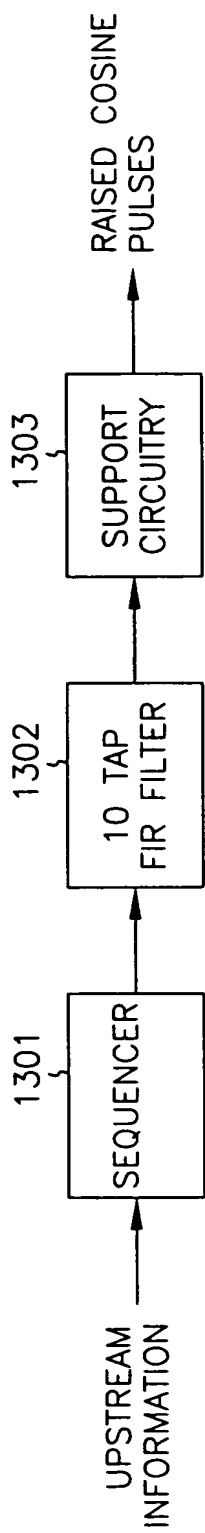


FIG. 121

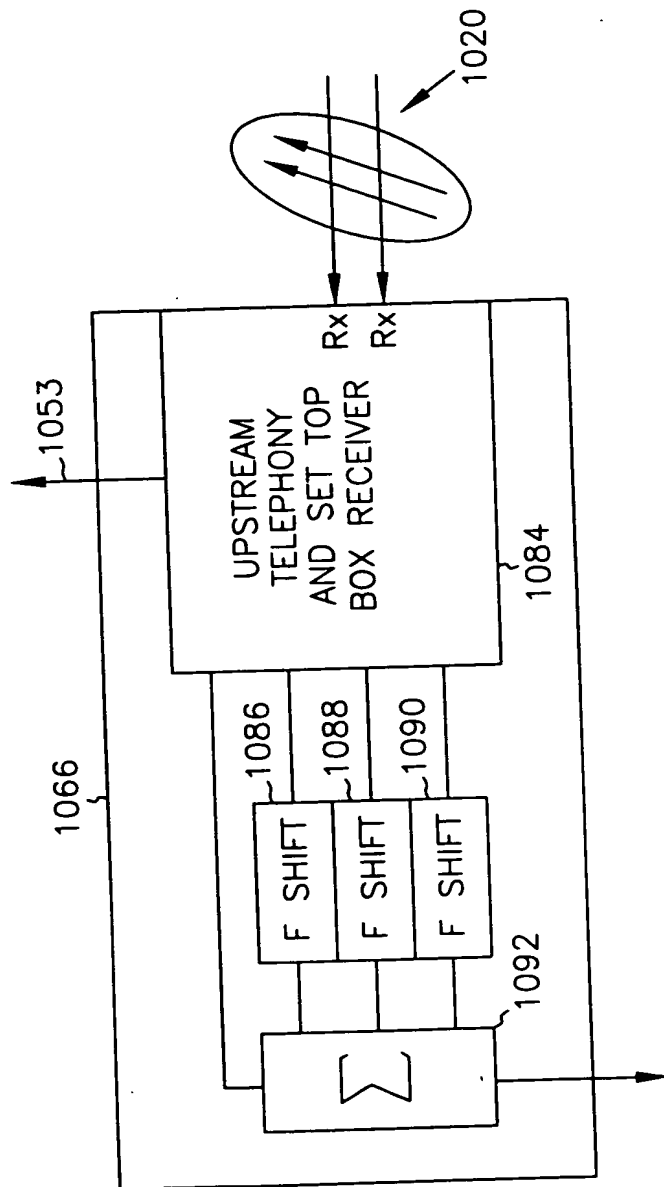


FIG. 122

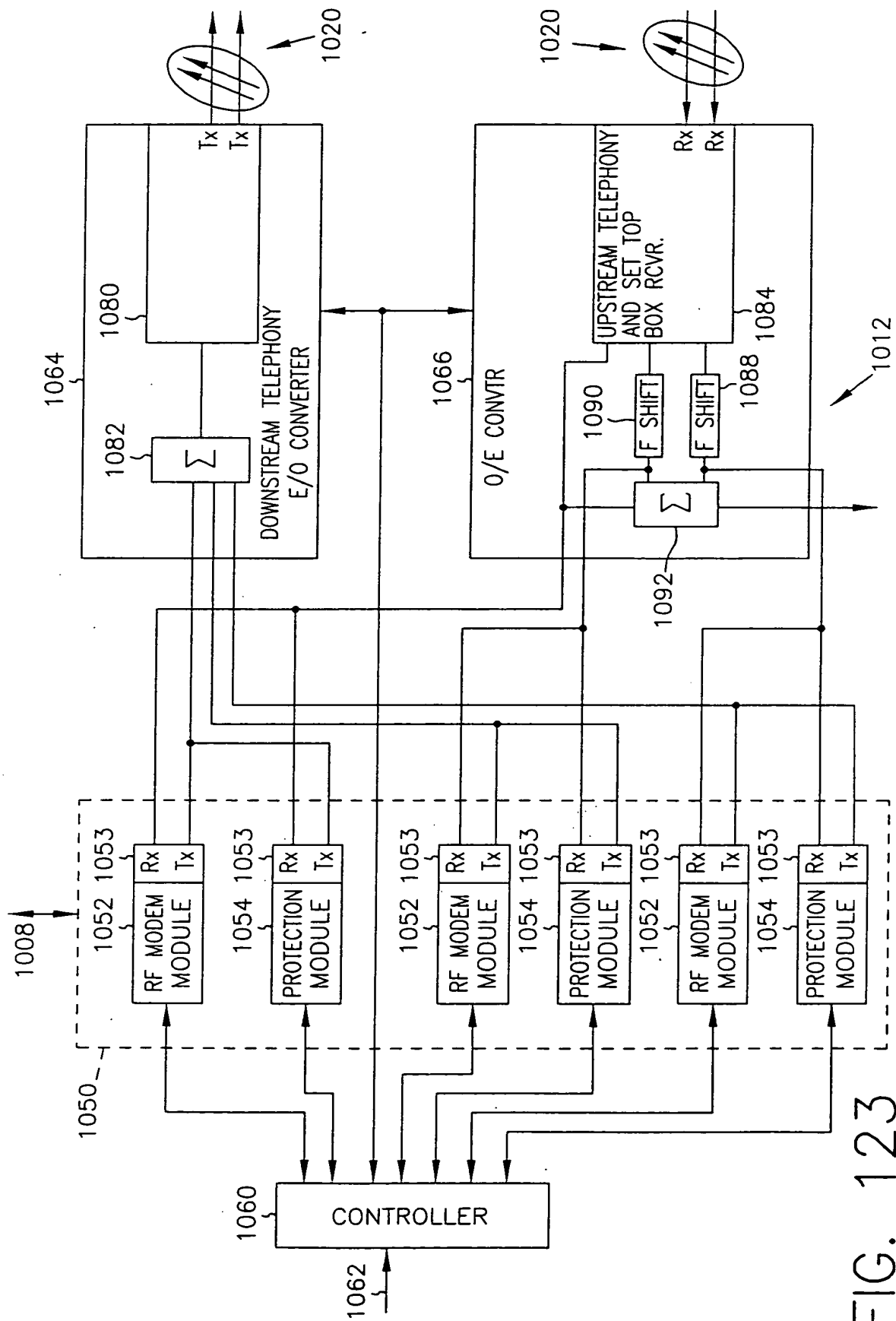


FIG. 123